A SMALLER
COMMERCIAL GEOGRAPHY

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HANDBOOK OF COMMERCIAL GEOGRAPHY.

By George G. Chisholm, M.A., B.Sc.

With 31 Maps and 8 Diagrams. 8vo.

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PREFACE.

THIS text-book is in the main an abridgment of my Handbook of Commercial Geography. In making the abridgment I have endeavoured to retain as much as possible of the matter that seems fitted to present the leading facts of international commerce in such a way as to impress the memory. The description of countries is confined to features of importance in relation to commerce.

In place of the tables of imports and exports given in the larger book, paragraphs have been inserted in the text summarising the main facts to be learned from such tables. In these paragraphs attention is drawn to the principal features of the recent history of the commerce of all the more important commercial countries; the rise and fall in the trade in various commodities. Such particulars are mostly derived from the last issues of the Statistical Abstracts published by the Board of Trade, and relate to the periods embraced by these publications, ten or fifteen years, as the case may be. The comparisons are not made between the first and last years for which figures are given in the respective abstracts, but between groups of years, and always apply to quantities, unless values are expressly mentioned.

Like the larger book, this text-book is divided into paragraphs for the sake of making frequent cross-references. The references are made by printing the number of the paragraph referred to in thick type in parentheses, thus (**245**).

GEO. G. CHISHOLM.

LONDON, *March* 1890.

NOTE TO THE EDITION OF 1905.

In this edition the section on the British Isles is that which has been most considerably extended, but much additional matter has been inserted elsewhere, for the most part in the form of concise statements of the principal geographical conditions conferring importance on the leading commercial towns. Another change in this edition is in the mode in which town populations are given. Instead of being put in parentheses after the names of the towns, they are given in round numbers at the foot of the page in which the towns are mentioned.

For much assistance in the preparation of this edition I am indebted to Miss E. J. Hastings.

GEO. G. CHISHOLM.

London, *September* 1904.

NOTE TO THE EDITION OF 1914.

In the preparation of this edition I have been indebted for much assistance to my University assistant, Miss A. B. Lennie, M.A., B.Sc.

GEO. G. CHISHOLM.

Edinburgh, *December* 1913.

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A SMALLER

COMMERCIAL GEOGRAPHY.

INTRODUCTORY EXPLANATIONS.

1. Commerce is the exchange of commodities or articles desired by man. In commercial geography the subjects chiefly considered are the place of production of such articles, and the routes and modes by which they are and may best be exchanged. Other matters are, however, frequently involved in the consideration of these subjects. Thus it may be necessary to inquire into the quality of articles. Articles of different quality are in fact different, though they may be entered in tables under the same name. Coal or iron ore of a good quality may be worked in situations in which an inferior coal or ore would not be worked. Further, the mode of production sometimes determines the place of production. Iron may be made from iron ores by modern cheap methods, though it cannot be made with profit from the same ores by old and dear methods.

2. Some of the articles exchanged in commerce are ready for their final use; others are of use only to be worked up into other forms. Thus cotton, wool, and other fibres have to be worked up into yarns and cloths; hides into leather. Such articles are called **raw materials**, and various articles, such as cotton, wool, sugar, hides, &c., are spoken of as "raw" when they are dealt with in commerce only after undergoing such simple treatment as they may easily be subjected to at the place of production.

3. Articles brought into a country are called **imports**, those

sent out **exports**. Articles are, however, frequently brought into a country and afterwards sent away to others (79*g*). There is thus an important distinction between articles imported for use or consumption in a country (home consumption) and those which are re-exported. The term **general commerce** is applied to the commerce of a country in all articles whatever, the term **special commerce**, usually to the import of articles for home consumption, and export of articles produced in the exporting country. Among articles consumed in a country are included all those which are there worked up into another form. Raw cotton is used or consumed when it is made into cotton yarn, and is therefore one of the special imports of the country in which yarn is made from it, and that yarn, if exported, is one of the special exports of the country.

3*a*. Unfortunately this distinction is not always observed. In some countries, for example, all articles that have paid duty on being imported are included as part of their special commerce. The published tables of the commerce of such countries, accordingly, do not enable us to compare their true special commerce with that of other countries.

4. The total value of the special exports of a country is generally nearly equal to that of the special imports. Commerce being an exchange, the exports are in fact the articles given in exchange for, or in payment of, the imports. When the imports are regularly much greater or much less than the exports, there are always special explanations of the fact, and in general these explanations come to this, that there may be an exchange of services as well as an exchange of material articles. For example, such a difference exists in the commerce of the United Kingdom to a greater extent, perhaps, than that of any other country. The value of the British imports for home consumption is, on an average, more than one-half greater than that of the exports of home produce. England thus buys much more than it sells. But then Englishmen have laid out vast sums of money in foreign countries. That is a service rendered to those countries, very often the means of producing material wealth in them. The interest and profits on that money accordingly enable England to buy more than it sells. Moreover, English ships carry the lion's share of the

sea-borne commerce of the world, and the freights earned by these ships represent to a large extent services for which other countries are indebted to England. And these are not the only explanations of the difference.

5. Though commerce is thus essentially an exchange of commodities for commodities, services for services, or services for commodities, yet the actual exchange usually takes place by means of money or the equivalent of money. **Money** is mostly in the form of coin or pieces of metal stamped for no other purpose than to serve as a measure of value. An order or a promise to pay coin may be used instead of it, and where the order or promise can be relied on—in other words, where credit is good—such order or promise is a complete equivalent for money. In uncivilised countries goods are frequently exchanged without the aid of money. Cotton-cloth may be exchanged for palm-oil (47), tobacco for coco-nut kernels (47). Such an exchange is called barter.

COMMODITIES—CIRCUMSTANCES AFFECTING THEIR PRODUCTION AND CARRIAGE.

6. **Climate.**—This is one of the most important factors in determining the production of commodities. All the leading British imports (82*a*), for example, depend more or less on climate for their production. They are all derived either from plants or from animals that feed on plants, and the production of all such commodities is regulated to a greater or less degree by the amount of heat and moisture in the places where they are produced. There are, therefore, a few facts with regard to the distribution of heat and moisture over the globe to be carefully kept in mind in studying commercial geography.

6*a*. First, **heat or temperature.**—On the whole temperature decreases from near the equator towards the poles, from lower elevations to higher. The chief modifying cause affecting the decrease of temperature polewards is the prevalence of winds blowing from warmer to colder latitudes, and more especially where the temperature of these winds is maintained by warm sea currents. The vicinity of great bodies of water and espe-

cially the sea, has an equalising effect on temperature, but this effect is brought about solely through the agency of the winds, and therefore varies greatly with their direction. In the temperate zone the greatest variety of climate is experienced in the northern hemisphere, in which are the greatest land-masses belonging to that zone. The western parts of the two great land-masses of that zone have the most equable climate, because Europe, the western part of one of these land-masses, is exposed to mild south-west winds and sea-currents from the North Atlantic, and the corresponding part of North America is exposed to warm winds blowing in the same direction from the North Pacific. In the east of the two great land-masses in the same latitudes very hot summers alternate with very cold winters, because in both these regions the prevailing winter winds are more or less northerly. These extremes of temperature, however, are greatest at some distance from the sea. In and near the tropics temperature over and near the sea is modified by the **trade-winds**, which always blow in some part of these regions more or less from east to west.

Mountains, by obstructing winds, have important effects on temperature, sometimes by protecting from cold winds, sometimes by shutting off the beneficent influences of warm ones. Where the atmosphere is dry and clear there is great loss of heat by *radiation*, and there are therefore great extremes of heat by day and cold by night in warm regions with an atmosphere of this kind.

6*b*. Second, **moisture**.—The great source, in the first instance the only source, of moisture is the ocean. Hence, the farther inland a region lies the less chance has it generally of receiving an ample rainfall, unless there are special conditions favourable to the condensation of water-vapour. Condensation takes place through the lowering of the temperature, and one of the most frequently operative causes in bringing about that reduction of temperature is the presence of mountains, obstructing moisture-laden winds, and thus forcing them to ascend and become cooled through the expansion of the air. Consequently regions on the maritime side of the mountains often have a sufficient rainfall when those on the other side have not. In the tropics there is generally a more marked distinction between rainy and dry

seasons than in most parts of the temperate zone. This distinction is most noticeable in the **monsoon regions**, in which in winter the wind tends to blow from the land, and in summer (the rainy season) from the sea. The chief monsoon areas are the south-east of Asia and the north of Australia. In the east of Asia this alternation of dry and rainy seasons extends far into the temperate zone.

6*c*. Where moisture enough does not fall as rain, it may in some places be supplied from rivers, lakes, wells, or artificial reservoirs. This artificial watering is called **irrigation.** In many parts of the world the structure of the ground is such that when holes are bored in the ground to a sufficient depth water will of itself rise to the surface. Such springs are known as **artesian wells.** Natural facilities for irrigation are of immense value to a region in which the rainfall is scanty (**154***a*).

7. A suitable climate is not all that is required for the production of vegetable commodities for commerce. Some commodities require much more labour than others to make them ready for the market, and these cannot be grown with profit where labourers cannot easily be got in sufficient number. For example, the climate of the United States is in many places well suited for the tea-plant, and many of the farmers of that country grow a little tea for their own use. But there is hardly any tea grown in the United States for sale, for the tea-leaves require a great deal of preparation before they can be sold, and the American farmers cannot afford to prepare them, because this can be done so much more cheaply in India, China, and other parts of Asia, where there are multitudes of labourers who work for very low wages. Often not cheap workers, but highly skilled workers, are what is wanted for commercial production. Under this head may be included those who display manual dexterity and intelligence in manufacturing and other operations, and highly educated persons qualified to direct the operations of production and distribution.

8. Further, the production of commodities for commerce depends to a great extent on the **cost of land and such natural agents of production** as are capable of appropriation; for example, coal and water-power. In England, and in populous countries generally, land is dear. An English

farmer, therefore, cannot afford to grow wheat at the same price as a farmer in certain parts of Canada or the United States; for example, where the inhabitants are still few and land is very cheap. To make wheat-growing profitable an English farmer must get about thirty bushels of wheat to the acre[1] or more, and to get this amount of produce he must buy expensive manures. In parts of the United States, Argentina, and elsewhere, the farmer can afford to let two or even three acres yield altogether no more produce, and to sell that produce at the nearest railway station at perhaps three-fourths of the price that an English farmer gets for the same amount at his market town.

8*a*. On the other hand, in England coal is cheap, and since power-driven machinery has been largely used in manufactures, that has been a great advantage to this country. Other countries are rich in other forms of fuel—petroleum, natural gas, &c.—others in water-power.

8*b*. In recent years power has come to be very extensively applied by means of electricity. This has in many cases greatly facilitated the use of water-power, and thus increased the advantages of countries in which waterfalls and rapid rivers abound. But electricity is in some ways an advantage even where coal is burnt in order to develop it. Though there is a loss of energy in converting the power latent in coal into the form of electricity, yet electrical power can be transmitted to a distance with less loss than steam-power. This leads to several economies. The coal can be used to develop electrical energy where it is cheapest. It can be used for that purpose in one great establishment on a large scale, instead of in many places on a small scale; and in the end each one who uses the power can take for his requirements just as much as he needs and when he needs it. Electrical power can be turned on like gas for lighting. Thus one gets rid of numerous steam-engines, each of which required its own attendants, and had to be kept ready for work at the cost of fuel, even at times when there was no work for it to do.

9. Countries in which land is cheap are those to which the great streams of **emigrants** are now directed. They are mostly

[1] An acre is about seventy yards square. A bushel of wheat generally weighs rather more than 60 lbs.

countries that have received a civilised population only in modern times, and which are hence known as **new countries.**[1] Among the countries from which emigrants proceed the British Isles long took the lead.[2] British, German, and Scandinavian emigrants go chiefly to the United States, Canada, and the Australasian Colonies. Large numbers of Italian emigrants go to the Argentine Republic, three-fifths of the settlers in which are Italians; and there is now also a large flow of Italian emigration to Brazil and the United States. Down to 1867, inclusive, the Irish predominated among the emigrants from the British Isles, but since that year the English, as distinguished from Scotch and Irish, have been the most numerous emigrants from the United Kingdom. Of late years they have made up three-fifths of the whole number. From Asia the chief emigrants are the Chinese, who go in considerable numbers to various tropical countries. Chinese and Indian labourers go under contract (as coolies) for terms of years to work in many tropical and sub-tropical plantations or in mines. Formerly there was a considerable free emigration of Chinese to the United States and the temperate parts of Australia, but this has been wholly or greatly checked by the governments of the countries to which these emigrants proceeded.

[1] Average number of immigrants in thousands, in the case of the Argentine Republic after deduction of the emigrants:—

Period	United States.	Argentine Republic.
1881–1890	545	80
1891–1900	384	40
1901–1910	880	83 (1901–8)

The number of immigrants into the United States increased steadily from 229,000 in the year ending June 30, 1898, to 1,101,000 in that ending June 30, 1906, and in all these years the number of emigrants from Italy, Austria-Hungary, and Russia, greatly exceeded the number of those from the British Isles, Germany, and Scandinavia. The immigration into Canada increased from 32,000 in 1897–8 to 402,000 in 1912–13 (151,000 from the British Isles, 139,000 from the United States).

[2] Average number of emigrants in thousands:—

Period.	United Kingdom.	German Empire.	Italy.	Spain.	Austria-Hungary.
1881–1890	256	118	99	67 (1883–90)	44
1891–1900	174	58	187	83	69
1901–1910	284	28	364	109	228

"Emigrants" include soldiers, officials, and tourists in case of Spain.

10. In new countries the leading products are for the most part those of agriculture. Sometimes they include some of the more valuable minerals. The surplus of such products is exported in exchange chiefly for manufactured articles of all kinds, together with varying proportions of sugar, tea, coffee, tobacco, &c., if the countries referred to do not themselves produce these articles, or do not produce them to any great amount.

11. The cost of **carriage** is a fourth circumstance which greatly affects the production of commodities. Wheat is sometimes carried by rail and by sea a distance of more than 15,000 miles, and then sold at a profit. On the other hand, before the introduction of railways into Japan, rice could not be carried to market with a profit more than a hundred miles on the best country-roads. Sea-carriage is always the cheapest. The whole cost of carriage of a quantity of raw cotton from Bombay to Liverpool, a distance of 7150 statute miles, may be only about seven times as much as the cost of carrying the same quantity from Liverpool to Oldham, a distance of 39 miles.

11*a*. The means and the cost of transport differ greatly in different parts of the world. Human porters are now employed chiefly in central Africa. **Beasts of burden** carrying pack-saddles are in much more general use. The most important of these are oxen, horses, asses, and mules. Asses and mules are employed mainly in the warmer parts of the temperate zone, and mules in particular—animals remarkable for their endurance and sureness of foot—are the typical beasts of burden in mountainous countries, where the climate is at least moderately warm and dry. Llamas are employed in the Andes, yaks (a kind of oxen), and even sheep in the Himalayas and other Asiatic mountains. The camel is well known as the indispensable beast of burden in desert plains, but it is sometimes used even on mountainous routes. A native of Asia, it has long been introduced into the deserts of Africa, and more recently into western North America and Australia. Of all beasts of burden in ordinary use it bears the heaviest load. Yet the average load of the single-humped camel is only about 350 lbs.,

that of the two-humped camel of central and eastern Asia about double that. A camel-caravan sometimes consists of more than a thousand camels, carrying in all little more than 150 tons. The elephant carries a much heavier load than the camel, but no animal requires so much food in proportion to the work done by it. Nevertheless it is of great value in certain regions, as in marshy tropical forests, where no other animal can be used.

11*b*. When employed to drag **wheeled vehicles** animals can transport a much greater weight than when the loads are carried. In certain regions with a very dry climate, where the ground is accordingly hard, vehicles can be used even where there are no roads. Bullock-waggons, sometimes with a score or two of bullocks in a team, are so employed in south Africa and Australia. In South Australia camels also are used in harness. In the Arctic Regions reindeer and dogs are employed to draw sledges.

11*c*. Immense improvements in transport have been made in modern times. The first were in navigation. The science of navigation has been so much advanced, and the instruments for taking the observations necessary in navigation have been so much improved, that the course of a vessel can be laid down with much more precision than formerly. The winds and currents of the ocean are now better known, and are regularly taken advantage of wherever possible. In voyages from Europe to the West Indies or the Gulf of Mexico vessels first take a southerly course to get into the region of the trade-winds (6*a*) as soon as possible, so as to be helped by them in their voyage westwards. In their return voyages they take first a more northerly course, so as to get as soon as possible the help of the prevailing south-westerly winds (6*a*). Sailing vessels proceeding to New Zealand, after traversing the Atlantic Ocean, make for the latitudes in which the westerly winds of the southern hemisphere prevail ("the roaring forties," between 40° and 50° S.), and having reached New Zealand, they make the return voyage by Cape Horn, towards which they are driven by the same winds.

11*d*. The nineteenth century gave birth to the greatest improvements in locomotion that the world has seen. Road-

making was improved at the end of the eighteenth century and the beginning of the nineteenth century by two Scotchmen, Telford and Macadam. In 1807 the first steam voyage in every respect successful was made on the Hudson River, New York, by Fulton. In 1825 the first steam railway was opened (between Stockton and Darlington in England). The period since then has been pre-eminently a railway-making era almost all the world over. A table in the appendix shows some instructive differences that now exist in the proportion of railways to population in different countries. The improvements in locomotives and marine engines have been going on constantly, leading to increased speed, and some of the most important, to increased speed at a smaller cost of fuel. Steamers have been greatly enlarged. Some are now built of more than 40,000 tons burden. Some attain a speed of more than twenty miles an hour. Further, ocean routes have been shortened by the construction of a ship-canal of the highest importance, namely, the Suez Canal, opened in 1869. In consequence of these changes a single vessel can take to India and back from it in eight or nine weeks as much cargo as, three hundred years ago, it would have required a single vessel eleven or twelve years to carry to and from that country.

11*e*. Another proposal for cheapening transport was the construction of **ship-railways**. By these it was designed to carry loaded vessels from one sea to another. The ships were to be lifted out of the water and transferred to cars, being at the same time carefully poised, so that the weight of the cargo should be balanced by external pressure as when the ships are in the water. But this project has fallen into abeyance.

11*f*. The increased speed and reduced cost of ocean transit have rendered possible a trade in certain products that could not formerly be carried great distances; for example, a trade in fresh tropical fruits (41). Improved processes of preserving have helped to bring about the same result. The most important of these are the processes for preserving meat for three months or more by cold air (refrigeration), so that fresh mutton and beef can be conveyed to England from New Zealand, Australia, and the Argentine Republic.

12. In connection with the cheapening of transport, the improvement of **the post** and the invention of the **electric telegraph** may also be noticed. The inland penny post was first introduced, in England, in 1840. The international postal union, which now embraces nearly all the civilised countries in the world, had its origin in 1874. The year 1840, that of the first penny post, was also that in which the first electric telegraph was laid over a length of more than four miles. In 1851 was laid the first permanently successful **submarine electric cable** (between Dover and Calais), and in 1866 the first permanently successful cable across the Atlantic (from Valentia in Ireland to St. John's, Newfoundland). There are now numerous cables across the North Atlantic (from the south-west of Ireland, the south-west of England, and Brest in Brittany to Newfoundland, Miquelon, and Nova Scotia). There are cables from Lisbon by Madeira and the Cape Verde Islands to Pernambuco in Brazil. Submarine telegraphs have also been laid along the bottom of the Mediterranean, down both sides of Africa to Cape Town in the west and Durban in the east, touching at the chief ports on each side. Durban is also connected in the same way with Mauritius, the Cocos Islands, and Fremantle, Madras with Singapore, and then by Java with Port Darwin in Australia (**346**). In November 1902 the first Pacific cable was completed, connecting Vancouver by Victoria, B.C., Fanning Island, the Fiji Islands, and Norfolk Island, with Auckland (New Zealand) and Brisbane (Queensland). Another Pacific cable now connects San Francisco by Honolulu and Guam with Manila, Celebes, and Shanghai. Wellington (New Zealand) communicates in the same way with Sydney. Wireless telegraphy, often previously experimented with, has been rapidly developing since the beginning of the twentieth century. In January 1901 communication by this method was established for a distance of 200 miles. Now it is of great value for communication between ships at sea, and installations have been made for sending messages by this means across the Atlantic.

12*a*. The chief effects of telegraphs in cheapening commerce are these. First, without the electric telegraph to signal the movements of trains it would probably be impossible to carry on the amount of traffic maintained on the busier railways. Second,

the electric telegraph prevents the necessity of keeping large stocks in store. Third, it reduces the risk of loss through fluctuations in prices.

12*b*. In reading the dates of telegrams from a distance it must be remembered that for every 15 degrees of longitude there is a difference of one hour in time, one hour earlier for places to the west, one hour later for places to the east. The following list gives the time at various places east and west of Greenwich when the Greenwich time is noon :—

	A.M. H. M.		P.M. H. M.
Honolulu	1 29	Paris	0 9
Vancouver	3 48	Berlin	0 53
San Francisco	3 50	Cape Town	1 14
Denver	4 59	St. Petersburg	2 1
Mexico	5 23	Aden	3 0
St. Louis	5 59	Bombay	4 51
New York	7 4	Calcutta	5 54
Buenos Aires	8 7	Singapore	6 55
St. John's, Newfoundland	8 29	Hong-kong	7 37
Bahia	9 26	Adelaide	9 14
Funchal, Madeira	10 43	Sydney	10 5
Lisbon	11 23	Wellington	11 39
Madrid	11 45	Suva, Fiji Islands	11 54

It may be noticed that there is a difference of nearly 22½ hours in time between Honolulu and Suva. The difference in longitude between these two places is, however, less than 25 degrees. The apparent difference in time is due to the fact that the date is determined at Greenwich.

13. **Taxes** imposed by governments in one form or another may also have a great influence on the amount of certain commodities produced for commerce. The most direct effect of this kind is due to the imposition of customs duties on imports; on some manufactured articles imported into the United States a duty equal to as much as 60 per cent. of the price of the article is charged. This duty has to be paid by the importing merchant, and he expects to obtain the same profit on what he thus lays out as on what may be called the natural price of the article. Nations are said to follow a **free trade** policy when no

duties are levied on imported articles, unless equivalent duties are laid on the same articles produced in the country, if they are produced there at all. Countries levying import duties in order to protect native products (including manufactures) against foreign competition are said to follow a **protectionist** policy. In the framing of commercial treaties it is frequently stipulated that the countries contracting the treaty should each be put on the footing of the **most favoured nation**, so that any relaxation of duty granted by one of the countries is at once enjoyed by the other.

14. Production is likewise greatly affected by the character of the government. In no part of the world can commodities be produced to the utmost extent possible unless order is maintained and justice administered.

15. Many other conditions influence the production of mercantile commodities, but these six, climate, labour, land and natural agents of production, transport, taxation, justice, are the most important. All of them affect the products of the vegetable kingdom direct and indirect, and all except the first have an influence on the production of commodities of all kinds. Climate generally exerts only an indirect effect on the production of manufactured articles and minerals, where there is any effect due to this cause at all.

16. Of the six circumstances just mentioned as regulating production to a greater or less extent, climate is that which is least subject to change. Great changes in the place of production of the more important commodities, except minerals, are therefore generally due to changes relating to one or more of the remaining five. Where machinery can be employed to replace labourers, the introduction of machinery is one of the most important causes of such changes. In the case of minerals, a change in the principal seat of production may be due to the exhaustion of deposits in one place or new discoveries or new workings in others. Where production depends on machinery wrought by mineral fuel, the exhaustion of the supplies of fuel in one place, or new discoveries or new workings of that fuel in others, have also a great effect on the production of the articles made by such machinery.

COMMODITIES—THEIR CHIEF PLACES OF PRODUCTION.

I.—COMMODITIES DEPENDENT DIRECTLY OR INDIRECTLY ON CLIMATE.

The articles enumerated below are not confined to the regions under which they are entered. Maize, for example, is grown throughout the tropics. The articles are, however, entered as belonging to the region in which they are produced in greatest amount for commerce on a large scale. Almost all the maize of commerce is grown in the temperate zone, and not in its warmest parts, but between about 36° and 46° N. It is important to remember that most of the products here mentioned may be met with in any country belonging to the zones under which they appear. Their enumeration under the different countries is therefore needless.

A.—Products of the Temperate Zone.

17. **Wheat** thrives best in a moderately warm climate with a rather dry summer. For many years the area under this crop in the British Isles and some other countries has been, on the whole, declining, owing to a rapid fall in prices. Wheat is now chiefly grown for export in the United States, the Dominion of Canada, India, Russia, Hungary, the Argentine Republic, Uruguay, and one or two of the Australasian colonies; but the only parts of North America where there has been a great increase in the amount cultivated for export are some of the western states of the United States and the province of Manitoba, with portions of the North-West Territories of Canada.

Average Annual Production of Wheat in Millions of Bushels, generally in 1901–1910.

United Kingdom.	France.	European Russia.	Asiatic Russia.	Austria.	Hungary.	Germany.
55	319	461	155	53	160	133

Roumania.	United States.	Canada.	Argentina.	India.	Australasia.
73	657	110	130	294	63

Average Yield of Bushels per Acre.

	Bushels.		Bushels.
England	32	Russia	10
Belgium	35	India	11
France	20	United States	14
Germany	29	Manitoba	17
Hungary	18	Argentina	11
Italy	13	New Zealand	31

18. **Maize** requires a long summer with frequent rain or artificial watering; grown most extensively in the United States, but chiefly used in that country for the feeding of swine and other animals; imported into the United Kingdom principally from the United States, Argentina, and Roumania.

19. **Oats** succeeds best in a colder climate than that best suited for wheat; chiefly grown in northern Europe, Canada, and New Zealand; it forms the best food for horses.

20. **Barley.**—The finest quality is grown under the same climate as that best adapted for wheat, but there are many varieties, one of which is grown farther north than any other grain-crop (in Norway, beyond latitude 70° N.); imported into the United Kingdom most largely from Russia and the countries round the Mediterranean; chiefly used for making beer and whisky.

21. **Rye.**—The principal bread-plant in central and eastern Europe, but very little cultivated in the United Kingdom, and not very extensively in the United States.

22. **Pulses.**—The most important of these in commerce are peas, beans, and chick-peas. **Peas and beans** are largely imported into the United Kingdom, beans chiefly from China. **Chick-peas** are extensively grown in Spain and India, and are important in the commerce of Spain with the Spanish West Indies, being a favourite food with Spaniards. **Locusts**, the pods of the carob-tree, are exported from Cyprus and elsewhere to be used as food for cattle, and for other purposes.

23. **Potatoes.**—Introduced from South America; very extensively grown in Ireland and eastern Germany; too bulky to bear the expense of very long transit, but early potatoes are largely imported into the United Kingdom from the Channel

Islands, and even Malta. They are also a great export from Algeria.

24. **Fruits.**—**Apples** imported into the United Kingdom chiefly from North America; **plums** and **prunes** from France; southern fruits chiefly from the Mediterranean peninsulas. The principal southern fruits are **oranges** from Sicily, Spain, and Portugal; **lemons** from Sicily and other parts of Italy, which furnishes also candied peel (orange, lemon, and citron); **figs** from southern Italy, Smyrna, and Greece; **grapes** from Spain, Portugal, and France; **raisins** (dried grapes) from Spain and Asia Minor, sultana raisins being made from a seedless grape grown on the eastern seaboard and some of the islands of the Ægean Sea; **currants** (a smaller dried grape) from Greece; **almonds** from the Mediterranean. Oranges and raisins are now largely produced in California and parts of Australia.

25. **Wine.**—France takes the leading place in the production, export, and import of this commodity[1] (96, 98*a*). Australian, especially Victorian, wines are rising in favour, and Californian wines have long been in good repute. The vine thrives best in the warmer countries suited for wheat. It can stand drought (thanks to its deep root, which enables the plant to obtain moisture far beneath the surface). It can also stand severe winter frosts, but requires a long autumn, and does not thrive with frequent summer rains. It is therefore unsuited to the monsoon countries (6*b*). See also **116, 155, 164, 174, 188, 248, 254, 343*a*.**

26. **Hops.**—Require a very rich soil; chiefly grown in the S.E. of England, Germany (Bavaria), Austria (Bohemia), and the United States (New York and California); used in making beer.

Beet.—One variety, called **mangold** or **mangel-wurzel**, largely grown as cattle-food in the E. of England and elsewhere; another variety, the **sugar-beet**, cultivated to a much greater extent on the mainland of Europe for the sake of the sugar obtained from it. It is the chief rival of sugar-cane.

[1] Average annual production in millions of gallons:—

	France.	Italy.	Spain.	Austria-Hungary.	Algeria.	Germany.
About 1880 .	940	600	485	160	8	80
1906–10.	1130	993	337	192	175	45

Chicory.—The ground root of a plant, used for mixing with coffee, grown chiefly in France, Belgium, Holland, and central Germany; imported into the United Kingdom mainly from or through Belgium.

Olive-Oil.—See **47.**

27. **Flax.**—A crop valuable both for its seed (**linseed**) and the fibre obtained from its stem. It is grown in India and other warm countries, including the United States, chiefly for its seed, from which the best of drying oils (used by painters, &c.) is obtained. The fibre of such flax is of little value. Good flax fibre is produced mostly in the colder parts of the temperate zone, most largely in Russia and the north of Ireland. The best quality of flax, however, is produced in Belgium (**104**). Various processes are necessary to free the fibre from the stem. In the United Kingdom the principal uses of the fibre are in making sailcloth and table-linen.

28. **Hemp.**—A crop that yields, like flax, one product in warm countries, another in colder ones. The fibre, the product in colder climates, principally used in making cordage. The name is also applied to fibres obtained from other plants than the true hemp, but used for the same purpose. In India the hemp-plant is grown chiefly for the sake of certain stimulants it yields.

29. **Domestic Animals.**—In northern and western Europe, and in most new countries, the principal domestic animals are horses, sheep, and cattle; but in the Mediterranean countries, asses, mules, and goats are reared in exceptionally large numbers, and in the United States enormous numbers of swine are cheaply fed on maize. Relatively to the population, the greatest numbers of domestic animals are found in new countries, and more particularly in the most recently settled portions of these. Whereas in the United Kingdom the number of sheep is equal to less than one per head of the population, that of cattle less than one in three of the population, and that of horses equal to only about one in twenty of the population, in Australia, New Zealand, the Argentine Republic, and Uruguay the number of sheep per head is between fifteen and thirty, and the number of cattle from two to ten per head, and even the number of horses in some cases equals or exceeds that of the inhabitants.

30. **Wool.**—Obtained mainly from the sheep, but also from the camel, from the alpaca and vicuña of the Andes, the Angora goat, and other animals. The sheep producing the finest wool flourishes best in a warm, temperate, but dry climate. Sheep generally thrive on pastures that are not very rich, and they require little attention, except at shearing-time, but a large extent of ground is necessary for their support. The Australasian colonies, the Argentine Republic, and Cape Colony yield most wool for export. Spanish wool was formerly famous. Some German wools (116) still are so. English wool has special qualities that have caused it to be much sought after on the mainland of Europe for centuries. Wool has always to be freed from a large but variable amount of grease (yolk) and dirt before it is ready for spinning and weaving. When scoured it is called clean wool.[1] The Angora goat takes its name from a town in Asia Minor. It yields a lustrous wool of great value called mohair, for the sake of which it has been introduced into the Cape Colony, Australia, and elsewhere.

31. **Silk.**—The product of a worm, or more properly the caterpillar stage of a moth. The best is that obtained from a "worm" that feeds on the leaves of the mulberry-tree. The rearing of the silkworm, and the preparation of the silk for the market demand much labour and care, and the business is consequently carried on only where wages are very low, chiefly in China, Japan, India, the north of Italy, and the south-east of France. Indian silk is mostly obtained from the caterpillars of "wild" moths; that is, moths not reared for the purpose of yielding the fibre. This is known as tussur silk. Silk, after being unwound from the cocoons by the process of reeling and made into hanks, is known as "raw silk" (2). The silk

[1] The following estimates of the average annual import of raw wool into Europe and North America, with the equivalents in clean wool, are in millions of lbs. :—

	From Australasia.		From River Plate.		From South Africa.	
Period.	Raw.	Clean.	Raw.	Clean.	Raw.	Clean.
1881–1885 .	370	182	306	109	53	32
1896–1900 .	604	311	480	213	83	40

Such estimates are not now obtainable, but these figures are left to show the indefiniteness attaching to the data of wool imports.

that cannot be reeled off in this way enters into commerce as "knubs," "husks," or "waste silk." Formerly it was actually a waste product, but it is now spun by special machinery. Silk fibres slightly twisted so as to form yarn for weaving are called thrown silk.[1]

B.—Sub-tropical Products.

Under this head are entered products of the regions near the outer limits of the torrid zone, whether within that zone or outside of it, or grown at high elevations in lower latitudes.

32. **Cotton**, the cheapest of all fibres used in spinning and weaving fine fabrics. It grows in large tufts surrounding the seed of a bush, and is ready for the spinner as soon as it is picked and freed from the seeds. From 200 to 300 pounds of cotton, and often more, may be got from an acre of land, but the amount of clean wool got from sheep feeding on the same extent of land probably does not exceed 5 pounds. Sheep, however, are generally reared on land that is fit for little else; whereas cotton is grown on land that might be used for many other purposes.[2] The cotton-plant requires a long warm summer free from frost, with a fair amount of rain, or the means of irrigation. It is grown in all parts of the tropics, and more extensively in countries bordering on the tropics. It is exported chiefly from the United States, India, Egypt, and Brazil.[3] See also 47.

33. **Tobacco**, another crop very easily injured by frost, which is very destructive to the young plants. Its cultivation extends into cooler climates than that of cotton. The United States

[1] Proportion of supply of raw silk in the markets of Europe and America: from China upwards of 40 per cent.; Japan, about 20; Italy, under 20; Turkish Empire, about 6; France, about 3; Austria-Hungary, the Caucasus, and Persia, each less than 2 per cent.

[2] In 1900 the average price of raw cotton imported into the United Kingdom was 5·59d. per lb.; of raw wool, 9·47d.

[3] Estimated consumption of raw cotton in the world in 1890, 5228, in 1900, 6802 million lbs., of which about 85 per cent. was supplied by the United States. Of the raw cotton imported into the United Kingdom the proportion per cent. derived from the chief countries of origin was as follows:—

	United States.	India.	Egypt.	Brazil.
1886–1888 .	75	12	9½	2¼
1912 . .	79	2·1	18	0·9

yield the greatest amount, but the better qualities are obtained from tropical countries (Cuba, the Philippine Islands, Borneo, Sumatra, &c.).

34. **Opium**, the dried juice obtained from the seed-vessels of a kind of poppy. It is largely cultivated in India and exported thence to China, but in 1911 the Government of India agreed to stop the export entirely in 1917, or earlier, if proof is given of the absence of native-grown opium in China.

35. **Tea**, the dried and otherwise prepared leaves of a shrub allied to the camellia, grown in China, Japan, India, Ceylon, Java, and elsewhere, generally on hill-slopes. The cultivation is rapidly increasing in India, and still more so in Ceylon, where coffee plantations are being replaced by those of tea. In 1888 England, the chief market for tea, first imported a greater amount from India and Ceylon than from China (226).

Oranges, Lemons, &c. See 24.

36. **Dates**, imported into Europe from Algeria, Morocco (Tafilelt dates), Egypt, Mesopotamia (Bussorah dates), and Persia.

C.—Tropical Products.

37. **Coffee**, the prepared seeds ("beans") extracted from the berry of a tree which is grown on hill-slopes at a lower elevation, or in warmer latitudes, than tea; grown, like tea, only where the labour required for the preparation of the seeds is sufficiently cheap (7). Chief places of production in order of importance, Brazil, Java, Central America, the West Indies, Venezuela, India, Sumatra, and Celebes. It is grown also in many other tropical countries. Brazil furnishes about two-thirds of the production of the world; Central America the best quality.

38. **Cocoa**, a substance obtained from the seeds of the cacao-tree, a tropical American tree quite different from that which yields the coco-nut. It stands, and requires, a greater heat than the coffee-tree. Chief places of production in order of importance: Ecuador, the island of St. Thomas in the Gulf of Guinea, Venezuela, northern Brazil, Trinidad, Grenada, Ceylon, Java. It forms the favourite drink in Spain.

39. **Rice**, grown chiefly in those parts of the monsoon region of Asia where there is a very abundant rainfall or plenty of water for irrigation, for the growing plant has to be immersed in water for days. It is grown also in north Italy, the United States, and elsewhere; exported to Europe chiefly from Lower Burma, also from Japan, Cochin-China, and Siam.

40. **Sugar-cane**, a kind of grass with a thick stem rich in sugar, grown on low-lying, generally swampy, ground in the tropics, and in certain places beyond the tropics (the south of Spain, Louisiana in the United States, the extreme north-east of New South Wales, &c.).

41. **Tropical Fruits.**—Of these there is a great abundance and variety, but the chief international trade under this head consists in the export of **bananas** from the West Indies and other parts of tropical America to the United States (11*f*), and the export of **pine-apples**, either fresh or tinned, from many places in and near the tropics to many temperate countries.

42. **Cinchona** or **Peruvian bark**, the bark of certain trees, natives of the Andes, but now grown on hills in India, Ceylon, Java, and elsewhere. The bark yields quinine and other medicines highly valued as remedies for tropical fevers.

43. **Tropical Farinaceous Products.**—**Sago**, one sort chiefly derived from the Eastern Archipelago (220); another sort from the West Indies. **Tapioca**, mostly imported from the East and West Indies. **Arrow-root**, from various plants and various parts of the tropics.

44. **Tropical Vegetable Fibres.**—**Jute**, the fibre obtained from a plant grown in Bengal and used in making sacking; the finer fibres, often in combination with other fibres, in the making of various other fabrics, even plushes and velvets. **Henequen** or sisal hemp, a fibre obtained from Mexican plants, grown chiefly on the peninsula of Yucatan, is now very largely employed in the United States in making twine and sacking. **Manila hemp**, a product of the Philippine Islands, from which cordage of great tenacity and endurance is made. **China grass**, a plant of the nettle family, from which an excellent fibre for spinning and weaving is derived, but only with great labour. The plant is easily grown in all warm countries, and its fibre would probably be one of the cheapest of all, if a good machine

could be devised for extracting it from the stem. **Coir**, the fibre from the outside of the coco-nut.

45. **Caoutchouc** or **India-rubber**, a coagulated juice obtained from several tropical trees, most abundantly from one or two growing in Brazil. Various parts of the Old World, however, yield in the aggregate about half the supply. **Gutta-percha**, a similar juice, obtained chiefly from East Indian trees.

46. **Rattans**, the slender stems of certain palms which grow in tropical lowlands. They are exported for use in the making of various kinds of wickerwork (chair-bottoms, &c.).

Tortoise-shell, from tropical waters generally; the best from the Eastern Archipelago.

D.—Products of Various Climates.

47. **Vegetable Oils, Oil-seeds, and Oil-cake.**—**Olive-oil**, derived from the fruit of a tree grown chiefly in the Mediterranean region, the south of France and the province of Lucca in Italy yielding the best. The oil is also produced to a considerable amount in California. **Cotton-seed** oil, largely made in the United States, and also in England from seed imported from Egypt; much used to adulterate olive-oil, from which it can scarcely be distinguished; also used to adulterate lard. **Linseed**, see 27. **Rape-seed** and **colza**, the products of different species of cabbage. **Sesame**, the seed of a herb cultivated in India, the Mediterranean region, &c. **Poppy-seed**, exported from India, chiefly to France. **Ground-nuts**, the pods of a tropical plant, so called because they ripen underground; largely imported into France, chiefly from West Africa. **Palm-oil**, derived from the fruit of a palm which grows in Upper Guinea and the Congo basin. **Coco-nut oil**, derived from the kernels of the coco-nut palm, which grows on all tropical coasts. The dried kernel also enters into commerce under the name of **copra**. **Oil-cake**, used in fattening cattle, is the name applied to the masses of crushed seeds that remain after the oil has been pressed out of them. The so-called **spirit of turpentine** is a light oil obtained from the resin of firs, pines, and other similar trees; imported chiefly from the United States. Vegetable oils are used for various purposes, but those which enter

most largely into commerce are being increasingly used in soap-making, petroleum (61) being used in place of them for lighting and the oiling of machinery. See also 57.

48. **Resins** are certain extracts from the tissues of plants, distinguished by being insoluble in water, but soluble in such oils as spirit of turpentine. The most important commercially is **rosin**, which is used in paper-making, soap-making, &c., and is largely exported from the United States. Finer resins are used, among other purposes, for making varnishes. Among these are **dammar**, the product of an East Indian tree; **kauri gum**, from a New Zealand tree; **sandarach**, from a North African tree; **copal**, obtained from various trees growing in different parts of the tropics. **Amber**, which is used for many familiar purposes, is the resin of a tree long since extinct; obtained in East Prussia.

Gums resemble resins, but differ in being soluble in water. The best gums are derived from the east of the Sudan (264).

49. **Spices and Condiments.**—**Pepper**, from southern India and other parts of the East Indies. **Cayenne pepper** and **chillies**, both derived from a plant now grown in many tropical countries. **Ginger**, also tropical. **Cinnamon**, mainly from Ceylon; **cassia** mainly from China, but also from many other parts of eastern Asia. **Cloves** now grown in many tropical countries; **nutmegs** in several parts of the East Indies. **Pimento** or **all-spice**, from Jamaica. **Vanilla**, from Mexico, Réunion, Mauritius, &c. **Mustard, fennel, caraways**, &c., all European.

50. **Dye-Stuffs of Vegetable Origin.**—Many are exported in the form of wood, these being mainly from tropical trees; the most important, **logwood**, from Jamaica and elsewhere. **Indigo**, a blue dye, very largely made in India from a cultivated plant, which is also grown elsewhere for the same purpose. **Cochineal**, a red dye from an insect reared chiefly in the Canary Islands. **Madder**, a red dye from a plant grown in Holland, France, Turkey, and elsewhere. Cochineal and madder, and in recent years also indigo, are rapidly declining in commercial importance in consequence of the increasing use of coal-tar dyes (70) in their stead. **Gamboge**, from the Eastern Peninsula and Eastern Archipelago. **Yellow berries**, from a shrub belonging to Asia Minor. **Annatto**, from a tropical American tree.

51. **Tanning Materials.**—The most important of these are **barks**, principally oak-bark, larch-bark, the bark of the hemlock spruce (much used in North America, and exported thence), and the bark of certain acacias. Among others are **myrobalans**, the fruit of two Indian trees; **sumach**, the powdered leaves and young twigs of a Sicilian shrub; **valonia**, the acorn-cups of an oak belonging to Asia Minor and Greece; **divi-divi**, the pods of a South American tree (now grown also in other tropical countries); **cutch** (or **catechu**), an extract from an Indian acacia; **gambier**, a similar extract from a shrub belonging to the Malay Peninsula and the Eastern Archipelago. Cutch and gambier and many other tanning materials are used also in dyeing.

52. **Timber.**—The timber of commerce (pine-wood, fir-wood, &c.) is mostly derived from sparsely inhabited regions in the colder parts of the temperate zone and from mountain slopes or barren soils in lower latitudes. Norway, Sweden, Russia, and North America supply the bulk. **Cabinet woods** are mainly of tropical origin, though walnut, maple, and others are obtained from Europe and temperate North America. **Mahogany** is chiefly derived from West Africa, the West Indies and Mexico; **teak**, the best of shipbuilding timbers, mostly from Burma.

Cork, the bark of a kind of oak, exported from Spain, Portugal, and Algeria.

Esparto and **Wood-fibre** (for paper-making). See 67.

53. **Ivory**, chiefly the tusks of the African elephant. Africa is estimated to supply three-fourths of the ivory of commerce. An article of greatly inferior value is imported under the name of **vegetable ivory** from the northern parts of the Andes; most of the substance so called is derived from the seed of a palm; it can be used only in making small articles (buttons, &c.).

54. **Sponges.**—The horny internal skeleton of marine animals, the living portion of which consists of a coating of slime; from the eastern half of the Mediterranean (which produces those of best quality) and the West Indies (the Bahamas, Cuba), as well as the Gulf of Mexico. The trade seems likely to be seriously injured by the increasing use of rubber sponges.

Coral (red), chiefly from the western half of the Mediterranean. The trade is centred in Italy.

Pearls and **pearl-shell** (mother-of-pearl), mostly from tropical seas. Sponges, coral, and pearl-shell are all obtained by diving.

55. **Feathers.**—**Eider-down** from Norway, Iceland, the Faroe Islands. **Bed-feathers** from northern Germany and Russia. **Ostrich-feathers** from Cape Colony and the Sudan.

Wax.—Bees'-wax is a product of almost all parts of the world. Wax is also obtained from various trees growing in Japan, China, Brazil, and North America. **Lac**, the principal ingredient in sealing-wax, is obtained from an Indian insect, but is essentially the resin of a tree infested by the insect.

56. **Meat** in the form of fresh beef, pork, bacon, and hams is imported into the United Kingdom, chiefly from temperate North America, whence also are derived most of the British imports of lard and tallow; fresh mutton comes chiefly from New Zealand, Australia, and the Argentine Republic (11*f*); **hides, bones, and hoofs** mainly from the British East Indies, though largely also from many other parts of the world in which cattle are reared (29).

57. **Train-oil** (145) is derived from the blubber of whales and seals caught in cold northern, and to a less extent in southern, waters, mostly from the so-called right or Greenland whale; **sperm-oil** from the head, and a tube running along the back, of the sperm-whale, which is met with all over the ocean.

58. **Fishery Products.**—So far as commerce is concerned, the principal fisheries of the world are those of Norway and the Great Bank of Newfoundland, and the principal commercial product consists of dried and cured **cod-fish**. **Herrings** are largely exported from Norway and the east coast of Great Britain to north Germany; **oysters** from the west of France to England and elsewhere; **canned salmon** from the Columbia, Fraser, and other rivers on the Pacific coast of North America, largely from those of Alaska, to many parts of the world.

II.—MINERAL PRODUCTS.

59. Coal.—The principal coal-producing countries are shown in the table below.[1] The chief exporters of coal, the United Kingdom, Germany and Belgium. In the southern hemisphere the chief coal-producers in the order of importance are New South Wales, New Zealand, Queensland, and Chile. **Lignite** is a somewhat woody kind of coal, with less heating-power than true coal.[2] **Anthracite** is a form of coal which burns without smoke, and has very great heating-power. It is therefore of greater value than ordinary coal. In the United States, where anthracite is most abundantly produced, the average value of anthracite at the pit-mouth in the five years 1884–88 inclusive was 9s. a ton, that of ordinary coal 5s. 1d.; but since then the ratio has declined. **Coke**, which also has a greater heating-power than ordinary coal, is made from certain kinds of coal by burning away the more volatile parts.

60. Iron and Steel.—Iron ore occurs all over the world, but iron (so-called pig iron) is made on a large scale chiefly in European countries rich in coal or timber (for smelting) as well

[1] Production of various countries in millions of tons:—

	Million Tons.				
	1873.	1880.	1890.	1900.	1910.
British Isles	127	147	182	225	264
United States	51	70	141	241	447
German Customs Union	36	47	70	109	150
France	17·5	19	26	33	37
Belgium	15·8	17	10	23	24
Austria-Hungary	...	6·7	...	12	15
Russia	1·2	3·2	6	16	24
Spain	0·56	0·8	1·2	2·6	4
Australia and New Zealand	1	1·7	4·3	7·5	12·0
Canada	1·1	1·9	3·1	4·8	11·5
India	0·5	1·0	2·2	6·1	12·0
Japan	...	0·9	2·6	7·5	15·4

[2] The chief countries producing lignite are Germany and Austria-Hungary, which in 1910 produced respectively 68 and 33 million tons.

as in ore, and in the United States. Where wood is used for smelting it has first to be made into charcoal, as wood-fuel has not enough heating-power, and coal must usually be converted into coke for the same purpose. Steel, which is iron containing from 0·3 to 1·5 per cent. of a substance called carbon, and is harder, tougher, and more elastic than iron, is now also made by wholesale methods. The leading producers are shown below.[1] Of the five countries mentioned in the table below, the United States and Russia are the only ones that produce at least 90 per cent. of the iron ore consumed by them. The countries next in importance to the five named in the note as iron producers are Austria-Hungary, Belgium, Spain, and Sweden. The production of steel in the United States first exceeded that of the United Kingdom in 1886.

61. Petroleum, an oil that flows or is pumped from underground in such quantity that it is rapidly displacing all vegetable and animal oils for lighting and the oiling of machinery. In some places it is used as fuel for locomotive engines. It is most abundantly produced in the United States and Trans-Caucasia.[2] **Paraffin-oil** is a similar oil derived from certain rocks (shales) in Scotland. Paraffin is a solid white substance extracted from the same rocks. It is used in making candles. An oil like paraffin-oil is made in New South Wales in the same way under the name of **kerosene.** **Ozokerit** is a natural product resembling solid paraffin, and used for the same purpose; it is produced chiefly in Austrian Galicia. **Asphalt** is a natural thickened petroleum obtained most abundantly from Switzerland, Barbados, and Trinidad.

62. **Gold and Silver.**—The chief gold-producing parts of the

[1] Production in millions of tons:—

	Years.	United Kingdom.	United States.	German Customs Union.	France.	Russia.
Pig Iron Average	1871–1875	6·46	2·24	1·92	1·23	0·39
,, ,,	1906–1910	9·78	24·03	12·68	3·53	2·79
Steel	1873	0·50	0·17	0·25	0·15	...
,,	1906–1910	6·25	22·17	11·91	2·85	2·84

[2] The production of Trans-Caucasia was for a time more progressive than that of the United States, but in recent years this has been changed, chiefly through the great increase in production in California and Oklahoma.

world[1] are the Transvaal, the United States, Australia and New Zealand, Canada, the Russian Empire (principally eastern Siberia); the chief silver-producers,[2] the United States, Mexico, New South Wales, Bolivia, Germany, and Chile.

Precious Stones.—**Diamonds**, from Cape Colony, Brazil, India. **Rubies**, from Upper Burma. **Sapphires**, from India, Ceylon, &c. **Opals**, from Hungary.

63. **Lead.**—The principal lead-producing countries of the world are Spain, the United States, and Germany. **Copper** is used both by itself and as an ingredient in making bronze and brass. In the production of this metal the United States has long been far ahead of all other countries, and its production is rapidly increasing.[3] Next come Spain and Portugal, Mexico, Australia, Chile, Japan, Germany, and Canada. **Tin**, used in making *tin-plate*, that is, in coating sheets of iron to protect the iron from rust, and also as an ingredient in bronze; produced chiefly in the Straits Settlements, Banka and Billiton (Dutch East Indies), the eastern colonies of Australia, Tasmania, Bolivia, Peru, and England (Cornwall). **Zinc**, known in commerce in the crude state as *spelter*, is used in making brass and zinc-plate. The chief producing countries are Germany, Belgium, United States, and Great Britain.[4]

64. **Minor Minerals.**—The chief places of production of **quick-silver** or **mercury** (much used in extracting gold and silver from their ores, as well as in silvering glass) are United States, Spain, Austria, Italy, Russia; **manganese** (now of great importance in steel-making), Chile, Trans-Caucasia, and many other parts of the world; **platinum**, Russia (Ural Mountains);

[1] In 1901 the estimated value of the gold production of the world was about £55,000,000, of which the United States produced about 30 per cent., Australia about 29 per cent., and Canada and Russia each about 9 per cent. In 1898, the year before the outbreak of the war in South Africa, the Transvaal produced gold to the value of £16,044,000; in 1910, £32,000,000. Rhodesia in 1910 produced gold to the value of £2,570,000.

[2] In 1909 the total quantity of silver produced in the world was about 204 millions of troy ounces, of which nearly two-thirds was derived from Mexico and the United States.

[3] Between 1893 and 1909 the production of fine copper in the United States increased from less than 150,000 to nearly 500,000 tons.

[4] Zinc production of the world in 1902, 536,000 tons, of which Germany produced about 30 per cent., Belgium about 28 per cent.

salt, United Kingdom, United States, Germany, &c., the bay-salt of Portugal of very high quality; deficient in parts of India, where it is a large import; **graphite** (black lead), now principally produced in Ceylon, also at Passau in Bavaria; **sulphur**, exported mainly from Sicily, also extracted from iron pyrites (156) imported into Great Britain from Spain and Portugal; used for many purposes, but principally perhaps in the making of sulphuric acid. **Meerschaum**, chiefly derived from Eskishehr in Asia Minor (120 miles east by south of Brussa). **Nitrate of soda**, from Chile and Peru, used in making other compounds of soda (69), as a manure, &c. **Guano**, a manure derived from Chile, various islands in the Pacific, the West Indies, &c.; other **phosphate** manures, from South Carolina, Florida, Tunis, &c.

III.—MANUFACTURED ARTICLES.

65. **Textiles** (yarns, or threads spun for weaving, and woven fabrics) are now made most extensively by machinery in Europe, above all, western Europe, and in the United States; **cottons**, most largely in Great Britain (32); **woollens**, in Great Britain, France, Germany; **linens**, in Ireland and Scotland, as well as many European countries; **silks**, in France, Germany, and Switzerland; **jute fabrics**, at Dundee and in Bengal. All these fabrics are very largely manufactured in the United States, but there they are chiefly made for home use, whereas textiles are the most important commodities sent from western Europe, and, above all, from the British Isles, to countries with a less highly developed manufacturing industry. The making of coarse cotton yarn and cotton tissues by machinery is growing up rapidly in some of the regions that produce raw cotton, above all in India, the southern parts of the United States, and Japan.

66. **Leather**, largely made in all countries. The hides and skins exported from the United States and the Australasian colonies are mostly tanned, that is, in the form of leather, and an increasing proportion of those derived from India is in the same form. Germany, France, the United Kingdom, and the United States take the lead in the production of articles made from leather.

67. **Paper**, made from vegetable fibre, chiefly in the form of rags (linen rags making the best), esparto or alfa, a kind of grass and wood-fibre. Among European countries Germany manufactures the greatest quantity of paper. Esparto is used chiefly in the United Kingdom, which imports the material from the south of Spain and north Africa. Wood-pulp is exported from Norway, Sweden, Canada, and other countries in which soft-wooded trees of little use for other purposes abound. Germany and the United Kingdom are the greatest exporters of paper, the British export consisting mostly of paper of high quality. Machine-made paper is now produced even in India and Japan.

68. **Earthenware**, most largely exported from Great Britain and Germany. England, Germany, and France are all noted for their **porcelain**, which is made from a fine white clay, called kaolin, resulting from the wearing away of granite rocks under the action of the weather. In the East, where the art of making porcelain was known long before it was discovered in Europe, China and Japan still practise the art, though no longer with the same success as formerly,

Glass, made chiefly from sand and soda or potash. Belgium is the great seat of the manufacture of window-glass. Bohemia has long had a high reputation for its ornamental glass, and England for its flint-glass (crystal).

69. **Alkali**, a term applied commercially chiefly to various compounds of soda and potash, used for the most part in the making of glass and soap. The compounds of soda most used are made from common salt, either by the action of sulphuric acid, coal, and limestone (Leblanc process), or by the action of ammonia and carbonic acid gas (Solvay process). Alkali is a large export from the United Kingdom, where the soda compounds so called used to be made solely by the Leblanc process, but of late the export has declined, chiefly in consequence of the rapid expansion of the manufacture in Germany by the Solvay process.

70. **Coal-tar Dyes.**—Dyes of all tints are now made from substances extracted from coal-tar, a bye-product of the manufacture of gas, and are rapidly displacing many vegetable dyes. The first coal-tar dyes were made in England, but their manufacture is now carried on principally in Germany, to which

country Great Britain exports large quantities of the ingredients required in making them.

Artificial flowers, imported into the United Kingdom almost entirely from France.

THE COUNTRIES OF THE EARTH.

EUROPE.

71.—Europe, the *smallest* of the continents, is, taken as a whole, the most densely peopled. The situation and outline of the continent are peculiarly *favourable* to its climate. The whole area, except a small fraction in the north, lies within the temperate zone. The *great irregularity* of its outline causes it to enjoy in a higher degree than any other continent the mitigating effects of the sea on extremes of heat and cold, and its situation exposes it to the influence of favourable winds and sea-currents (*6a.*). Its *southern peninsulas* enjoy a peculiarly warm and equable climate, not only in consequence of the moderating effect of the Mediterranean Sea on the temperature, but also because these peninsulas are to a large extent protected from cold northerly winds by mountain-barriers on the north. By far the greater part of the area of Europe has a sufficient rainfall for cultivation, so that south of the region in which the temperature puts a limit on agriculture, almost the whole of the lowland area, and even in the far south land at the height of between two and three thousand feet, is capable of being tilled.

THE BRITISH ISLES.

72. **Extent.**—The British Isles occupy an area of more than 120,000 square miles, nearly two-thirds of which belong to Great Britain, including the small islands adjacent.

73. **Surface and Communications.**—With the exception of the Highlands of Scotland, in the north-west of that country, the greater part of the British Isles produces at least pasture-grasses and presents little hindrance to communication. In England

the total area under crops and grass is equal to more than three-fourths of the entire surface, in Wales nearly three-fifths, in Ireland (where one-twelfth of the surface is made up of bog or marsh land) three-fourths, in Scotland only about one-fourth.

74. The closeness of the railway network in each division is indicated in a table in the appendix, but it is to be noted that the railways of Scotland are laid mainly in the Central Lowlands, that is, the region between the Firth of Clyde and the North Sea from Aberdeen to Dunbar.

74*a*. The effect of the surface features on the routes and efficiency of railways is well illustrated by the routes from London to Plymouth. The older route of the Great Western Railway is the longest but easiest. It first ascends the Thames valley, passing south of the Chilterns and north of the Marlborough Downs. It next passes south of the Cotswold Hills to Bristol, then southwards to the west of the Mendip Hills, and between Exmoor Forest and the Blackdown Hills to Exeter, whence it runs east and south of Dartmoor to Plymouth. Its total length is 246 miles. The South-Western line has a more direct but more undulating route across valleys and uplands to Exeter, whence it passes round the north and west of Dartmoor to Plymouth, which it reaches in 230 miles. Yet the Great Western Railway could run express trains to and from London in as quick time as the South-Western. The new Great Western line opened in 1906, running up the valley of the Kennet south of the Marlborough Downs and joining the older line near Taunton, shortens the distance to 224 miles. The Pennine Chain forms a serious hindrance to communication between the populous districts of Lancashire and Yorkshire. Three tunnels upwards of three miles long pierce that chain, one more than 1000 feet above sea-level. In going from Manchester to Carlisle a height of 916 feet is surmounted at Shap Fell; in going from Leeds to Carlisle the watershed between the Ribble and the Lune is crossed at about 1250 feet above the sea. In west Monmouthshire and east Glamorganshire serious hindrances to communication are presented by high steep ridges lying between the populous coal-mining and iron-working valleys.

74*b*. In the Southern Uplands and the Highlands of Scotland the railways wind about very widely to obtain the easiest

routes, and in the Southern Uplands rise at the summits to altitudes varying from 500 to above 1000 feet. In the Highlands a distance of nearly 70 miles in a direct line separates the nearest railways across the Grampians, connecting the lowlands with the shores of the Moray Firth. Of these railways, that through the central Highlands ascends the valleys of the Tay and Garry from Perth, and crosses from the basin of the Tay to that of the Spey by the Drumouchter Pass at the height of 1460 feet.

74c. In Ireland the effect of superficial configuration on railway routes is to be seen rather in the great windings of the lines than the high altitudes which they reach. The most serious deviations from the direct route are those due to the highland country on the adjoining borders of the counties of Tipperary, Waterford, and Cork; the railway from Cork to Waterford being thus made to run 21 miles, and that to Dublin 36½ miles north, before turning east or north-east respectively.

74d. The most serious obstructions to communication presented by water are those offered by the estuaries of the Thames, Severn, and Mersey, and by the Humber in England, by the estuaries of the Forth and Tay in Scotland, and by that of the Barrow in Ireland. There are two tunnels under the Thames below London Bridge, but only one of these is a railway tunnel. A tunnel under the Severn, 4½ miles long, below Chepstow, has since 1886 connected Cardiff with Bristol. One under the Mersey connects Liverpool with Birkenhead. As yet there is no unbroken connection between the opposite sides of the Humber. A bridge opened in 1890 crosses the Firth of Forth at Queensferry a few miles above Edinburgh, and another has spanned the Tay at Dundee since 1887, but the estuary of the Barrow remained unbridged till 1906, preventing Waterford from having direct communication with the east coast of Ireland.

75. In England **navigable rivers** of greater or less length flow down from the hills on all sides. The most important are the Thames, the Severn, the Trent and Ouse (Yorkshire), and the Mersey, with their tributaries. All of these are connected by **canals**, but since the introduction of railways the canals have come to be of minor importance as means of transport. They are chiefly used for mineral traffic, but all of them

together do not carry as much coal in a year as a single railway passing through an important coal-mining district. The existing canals are mostly of too small capacity to meet the demands of the present time. **The Berkeley Ship-Canal** on the left bank of the Severn, however, allows vessels drawing more than 10 feet to ascend from Sharpness to Gloucester, avoiding the windings and shallows of the river. The canals now in progress or projected are all intended to accommodate sea-going vessels. **The Manchester Ship-Canal,** now 28 feet in depth and 120 feet wide where the dimensions are smallest, large enough accordingly to admit all but the largest merchant-vessels, was opened for through traffic to Manchester on 1st Jan. 1894. Its total length from Eastham, on the S. side of the Mersey, is 35½ miles, of which the lower 21 miles are tidal.

75*a*. In Scotland the most important canal is the **Forth and Clyde Canal**, which allows small sea-going ships to pass from Grangemouth on the Firth of Forth to the Firth of Clyde above Dumbarton.[1] A ship-canal with a minimum depth of 17 feet has been constructed through the long narrow valley called Glen More, or the Great Valley, between Loch Linnhe and the Moray Firth. It is known as the **Caledonian Canal**, and is noteworthy as a piece of engineering, but is not much used for the purpose for which it was designed, namely, to allow ships to avoid the stormy passage through the Pentland Firth in the north of Scotland.

75*b*. In Ireland the principal navigable rivers are the Shannon and the Barrow. The **Shannon**, the largest river in the British Isles, has been made navigable to Lough Allen, that is, not far from its source, but above Athlone the navigation is quite insignificant. It is connected by canals with Belfast and Dublin (with the latter by the **Grand** and **Royal Canals**), and by a branch canal with the Barrow at Athy.

76. Climate.—The climate of the British Isles is mild and equable for the latitude, a consequence of their position with regard to the warm winds and currents of the North Atlantic (6*a*). It is favourable to active exertion throughout the year.

[1] It is now proposed to make a canal deep enough for large ocean vessels from Alloa on the Forth to the Firth of Clyde, either by Loch Lomond and Loch Long or by a more direct route involving more costly cuttings.

In winter there is little or no interruption to field labour in any of the parts best suited to agriculture, and there is little interruption to communication from snow or ice. The average rainfall at Greenwich, in one of the drier parts of the country, is 25 inches.

77. **Agricultural Products.**—The chief corn-crops of the British Isles are oats, wheat, and barley, the chief green-crops, turnips, potatoes, and mangold. The chief crops peculiar to special localities are hops and flax. Hops are grown chiefly in Kent, and also to a considerable extent in three other south-eastern counties, Sussex, Surrey, and Hants, as well as in those of Hereford and Worcester. Flax is cultivated chiefly in the north-east of Ireland. The chief fruit-growing counties are Kent, Devon, Herefordshire, and Worcestershire, in all of which cider is made from apples and perry from pears. Evesham and Pershore in south Worcestershire and Bewdley in north Worcestershire are all specially noted for their fruit and vegetable gardens, for the products of which the populous towns of north Warwickshire and south Staffordshire offer an excellent market. The Clyde valley in Scotland, above Glasgow, is also celebrated for its apples. Potatoes are a very important crop in Lincolnshire, and the late potatoes grown on the red soil round Dunbar in Haddingtonshire have long had a high reputation. Recently, Girvan in south Ayrshire has begun to carry on a large trade with Glasgow in early potatoes.

77*a*. In recent years there has been a great **decline in the area under corn-crops** generally, and a smaller decline under green-crops, in consequence of the great rise in the imports of agricultural products from distant countries where they are grown more cheaply.[1] The total area under corn-crops has fallen from 12 million acres in 1869 to less than 9 million acres. The decline has affected **wheat** more than any other crop. In Scotland and Ireland the cultivation of wheat is now carried on over a very small acreage indeed (in each less than 80,000 acres). Oats is the only grain-crop that is still cultivated over nearly as large an extent of ground as it covered in 1869. The principal increase during this period has been in grasses,

[1] In 1869 the area under wheat was nearly 4,000,000 acres. In 1895 it was as low as 1,456,000 acres, but it has since risen somewhat.

whether cultivated or in the form of permanent pasture. This increase might be expected to betoken an increase in the number of grazing animals. But in sheep there is a considerable decline, and the principal increase is in horses and cattle (29). Cattle have increased above all in the western and west midland counties, from which an enormous trade in milk and dairy produce is carried on with London and other large towns. Live stock of different kinds are the principal products of Irish agriculture, and many animals are sent living from Ireland to England. From Ireland also Great Britain obtains immense quantities of butter and eggs, and the quality of Irish butter has been greatly improved in recent years by the introduction of creameries, in which the milk is treated by wholesale scientific methods. In England, Buckinghamshire, Norfolk, and Suffolk are the counties most celebrated for their poultry. Aylesbury ducks and Norfolk turkeys are well known.

77b. While the home production of wheat has been declining, the number of people engaged in British mining and manufacturing industries has been increasing. The proportion of home-grown wheat to the whole amount of wheat and flour consumed has in consequence sunk very greatly. Shortly after the middle of the nineteenth century the proportion was above 70 per cent.; in recent years it has been less than 30 per cent. The proportion of home-produced meat consumed in the country has latterly been declining also, in consequence of the great increase in the quantity of frozen mutton and beef imported from New Zealand, Australia, and Argentina.

78. **Mineral Products.**—The most important minerals of the United Kingdom are coal and iron ore (*79a*), in the production of both of which it was ahead of all other countries till 1898 (59, 60). The principal other minerals, apart from building-stone, are slate, produced chiefly in Carnarvonshire, near the Menai Strait, and in Merionethshire; tin ore, chiefly in southern Cornwall; salt, in the basin of the Weaver in Cheshire, at Droitwich and Stoke Prior in the north of Worcestershire, in north Lancashire, on both sides of the estuary of the Tees (south Durham and north-east Yorkshire), and at Carrickfergus on Belfast Lough, Antrim, Ireland; various clays, the most valuable being china-clay (68), produced in

Cornwall and Devon, and fireclay, produced in south Staffordshire, the south of Yorkshire, Lanarkshire, and many other places, chiefly on or near coalfields; lead ore, produced in many parts of the country, most abundantly in the west of Durham and on the Isle of Man; oil shale, chiefly in a tract extending from the borders of Mid and West Lothian to the west of Fife in Scotland; copper ore, chiefly in Cornwall and the south-west of Devon (the total production only a small fraction of the import either in the form of ore or partly refined metal); zinc ore, chiefly in Denbigh, Cardigan, and other Welsh counties, and in the Isle of Man.

79. **Foreign Commerce.**—The table at the end of the book shows that the **foreign commerce** of the United Kingdom is **much greater in value than that of any other country in the world**, and greater also per head than that of most other countries in which there is a dense population. This shows that for foreign commerce this country must have peculiar advantages of one kind or another.

79*a*. The British Isles have, first, certain important **physical or natural advantages.**

These are: (1.) A favourable climate (76).

(2.) The abundance of **coal and iron** and some other raw materials. With regard to the wealth of the country in coal and iron, it should be noted that the advantage arises not only from the abundance of these minerals, but also from the fact that important supplies of both are found quite close to seaports, and that the coal necessary to the smelting of the iron is at no great distance from the iron ores, in some cases on the spot. These circumstances make this perhaps the most important of all the advantages of Great Britain, at least in relation to manufacturing industry. The great coalfield **of Durham and Northumberland** is bisected by the estuary of the Tyne and sends away enormous quantities of coal both abroad and coastwise through the ports of Newcastle, South and North Shields, Blyth and Sunderland. The southern end of it, moreover, is close beside the **iron deposits of Cleveland,** on the Tees in the North Riding of Yorkshire, the district which produces on an average more than a third of all the iron ore raised in the kingdom. On the other side of the country the **coalfield of Cumberland** includes the seaports of

Maryport, Workington, and Whitehaven, and lies close to the rich iron ores (**red hematite**) of south Cumberland and north Lancashire,[1] which are among the best ores for steel-making. The great **coalfields** of the south-east of **Lancashire** and the south-west of **Yorkshire** and the adjoining counties to the south are in a narrow part of the country, having ready access to the ports of Goole, Hull, and Grimsby on the east, as well as Liverpool on the west (79*e*). The South Wales coalfield, extending continuously from the south-east of Carmarthenshire to the valley of the Usk in Monmouthshire, embraces the fine natural harbour of Swansea, and is in immediate proximity to the seaports of Cardiff and Newport. Great beds of ironstone here gave rise to a vast iron industry, which is still carried on with great energy, though the local ore is now worked only to a limited extent, in consequence of the facility with which ores more easily worked can be got from abroad, chiefly from Spain (156). The coalfields of North Wales, in the counties of Flint and Denbigh, are close to the seaport of Chester, and are within easy reach of the much more important seaport of Birkenhead (Liverpool). The seaport of Bristol gives name to a coalfield on which it stands in south Gloucestershire and north Somerset, and is at a short distance from other detached coalfields in north Somerset, and from the coal and iron yielding district of the Forest of Dean in Gloucestershire west of the Severn. In the midland counties, where the coalfields are furthest from the sea, the character of the surface renders communication particularly easy, and in this region canal carriage is most largely made use of. Among these coalfields may be mentioned the continuation of the Yorkshire coalfield through the east of Derbyshire into Nottinghamshire, the rich coalfields of north and south Staffordshire, the latter extending into Worcestershire; the coalfields in the middle of Warwickshire and the west of Leicestershire, and that in south Shropshire extending along the Severn into the west of Worcestershire. Iron ores are worked to a large extent on the north Staffordshire coalfield, to a less extent on that of south Stafford; and other important deposits of iron ore at no great distance from one or other of the coalfields are worked in

[1] These ores, however, are mostly smelted with coke brought from the Newcastle coalfield.

Northamptonshire, the north-east of Leicestershire, and the south-west and north-west of Lincolnshire.[1]

79*b*. **In Scotland** the coalfields are likewise close to the sea, and likewise rich in iron. In the west the Ayrshire coalfield extends to the ports of Ayr, Troon, and Ardrossan. In the Clyde basin the coalfield extends below the port of Glasgow. The ports of Grangemouth, Bo'ness, Alloa, Burntisland, Kirkcaldy, and Leith are all upon or in close proximity to coalfields further east. The **black band ironstone** found in some parts of these coalfields (as in Ayrshire and the Clyde basin) yields an excellent iron for foundry purposes, and is itself for the most part so rich in coaly matter as to reduce considerably the expense for fuel in the operations preliminary to smelting. In several of the British coalfields coal is now being largely employed for the development of electrical power (8*b*). (See also **80** (4)).

79*c*. Unfortunately the advantages here referred to are confined to the island of Great Britain. The most productive **coal mines of Ireland** are at a considerable distance from the coast, in the north of Kilkenny county, and at a great distance from the chief iron-producing district of Ireland, in the county of Antrim. The Irish coal, moreover, is of inferior quality. The total production of coal and iron ore in Ireland is not equal to one per cent. of the production of these minerals in Great Britain.

79*d*. With reference to the advantages to the commerce of the British Isles directly flowing from the wealth of Great Britain in coal and iron, one fact should never be forgotten. The very greatness of these advantages makes the prospect of the ultimate exhaustion of the favourably situated coalfields or the rise of the cost of production of coal in Great Britain relatively to the cost in other countries all the more serious for that country.

79*e*. Other natural advantages are (3.) the natural facilities for establishing means of communication (74, 75).

(4.) The nearness of the coast on both sides. This advantage may be regarded in the first place as an additional circumstance

[1] In 1890 a coal-seam was discovered on the east coast of Kent, and mines are now under development there and in Sussex.

in favour of internal communication. The value of a railway is obviously much enhanced by being connected with a seaport, and the form of the country is such that a short railway establishes such a connection with any part of the interior. There is no place in the British Isles as much as a hundred miles from a seaport. Further, the **nature of this advantage is well illustrated by the trade of some of our seaports.** Though Lancashire, on the west side of the Pennine Chain, is the great seat of our cotton manufactures, Hull exported in 1885 nearly as great a value of cotton yarn as Liverpool, Hull and Grimsby together much more than Liverpool; the eastern ports of Great Britain collectively always export a greater value than the western ports collectively. The reason is that continental nations are among the chief customers for the better qualities of cotton yarn of British manufacture, and these customers are most easily reached from the east side. The woollen manufactures, again, are mainly carried on to the east of the Pennine Chain, but the woven fabrics are much more largely exported from Liverpool than from any other port, though woollen yarns are exported thence only to a limited extent.

79*f*. (5.) The **abundance of seaports** is what enables the advantage just illustrated to be utilised, but is also of importance in the extent of the accommodation it provides for shipping. No doubt such accommodation can sometimes be provided artificially, as in most cases it needs to be improved artificially, but there is an enormous advantage in respect of cost where facilities are furnished by nature, at a great many different points. In the British Isles there are more than twenty seaports with a depth of at least 25 feet at high water, and most of these are situated in the vicinity of the great seats of production. In view of the increasing size of the shipping of the present day this large number of deep harbours is a matter of peculiar importance.

79*g*. (6.) The **geographical position** of the British Isles. This is of great moment in more ways than one. In the first place, the "silver streak" is a natural bulwark of the highest value. It enables the kingdom to place its chief reliance for defence upon the navy, which makes a much less heavy drain upon the working population than the vast armies which continental

nations are obliged to train and keep on foot. Secondly, it is of great importance to British commerce that the British Isles lie nearly in the middle of the land surface of the globe, or, what is of more consequence, occupy a somewhat **central position among the nations that carry on a great commerce at the present day.** It was of no importance to England that America lay on the west, until America began to rear a population more or less dependent on foreign commerce. The effects of this central position with respect to the distribution of home products and manufactures will be understood readily enough from the illustration already given of the advantage of having seaports on different sides. Another important effect is well illustrated by the fact that on an average about one-fifth of the total value of the British exports represents articles that have been collected from various parts of the globe to be as widely distributed again in other parts. The wool of Australia and South Africa is sent from Great Britain to Germany, France, the United States, and other manufacturing countries; raw cotton is brought hither from America, India, and Egypt, and redistributed on the continent of Europe; silks and wines are imported from France, dried fruit from the Mediterranean, and sent to Australia along with the numerous products of British industry destined for the same market, and so on. A great variety of articles of eastern origin (india-rubber, cinchona bark, indigo, hemp, hides, spices, tea, &c.) are exported from the British Isles to the United States. This export of products of foreign and colonial origin is additional to the goods that are merely transhipped in British waters. The aggregate value of transhipped goods has in recent years averaged rather more than 10 millions sterling.

80. Of the advantages of the British Isles in relation to foreign commerce that cannot be classed under the head of physical or natural advantages, some are of great importance. Among these are:—

(1.) The fact that nearly all the great mechanical inventions by which modern industry has been revolutionised (the steam-engine and the locomotive, machinery for spinning and weaving, &c.) originated in Great Britain.

(2.) The abundance of capital.

(3.) The skill, endurance, and energy of the British workman, compared with most of his rivals.

(4.) The magnitude of British shipping.[1] This advantage is intimately connected with some of those which have been mentioned under the head of physical or natural advantages. The numerous British seaports afford an exceptional amount of accommodation for shipping. What is of still more importance, now that iron and steel have come to be the chief materials used in the construction of ships,[1] the British Isles have special facilities for shipbuilding. Another advantage is less obvious. British coal being of excellent quality and conveniently situated for export, the United Kingdom is the greatest coal-exporting country in the world. Now, in proportion to its value, coal is a very bulky article, and demands for its carriage a large amount of tonnage. In recent years coal alone has required more than two-fifths of the tonnage of vessels cleared with cargoes from British seaports. The ships that are thus sure of a cargo outwards are able to carry cargo homewards all the more cheaply, which is a great advantage to British shipping over that of other countries. In the five years 1883–87 the tonnage that entered the ports of the British Isles in ballast was more than twice as great as that which cleared. More than half the tonnage that cleared in ballast, however, was under a foreign flag, although foreign shipping at British ports is much less than one-third of the whole.

(5.) The extent of the British colonial and other possessions.[2]

(6.) The extent to which the English language is spread over the globe—in the United States as well as in the British colonies.

(7.) The free-trade policy (13) that has prevailed in the United Kingdom for more than a generation.

1 See the shipping table in the appendix.

2 In all the quinquennial periods from 1861–65 to 1891–95 the different members of the British Empire collectively furnished a larger proportion of imports into the United Kingdom than any one foreign country. In 1896–1900, however, they were surpassed under this head by the United States. The importance of the British possessions as a market for British produce and manufactures is still more striking, inasmuch as in all these periods they received more than one-fourth of the exported British produce, in the last five of them one-third or more.

81. The chief **disadvantages** against which British commerce and industry have to contend are:—

(1.) The dearness of land arising from the density of population and the great development of industry.

(2.) High wages and short hours for the workman—a disadvantage, however, which in the opinion of competent judges does not fully counterbalance the advantage of superior efficiency, as compared with most of the commercial rivals of Great Britain, though perhaps not all.

(3.) The backward state of education, especially commercial and technical education, compared with the state of education in some countries that compete with the British Isles in trade. In 1887 an Act was passed for the encouragement of technical education in Scotland, and in 1889 one for England.

(4.) Above all, the high tariffs of many foreign countries, and even British colonies.

82. **Exports and Imports.**—In recent years cotton manufactures, exclusive of yarn, have made up about one-fourth of the whole value of British **exports**, and the products of the textile industries in general more than one-third of the entire value.[1] These are, in order, cottons and cotton yarn, woollens and woollen yarn, linens and linen yarn, silk and jute manufactures, besides apparel and haberdashery. Iron and steel in all forms, together with manufactures of iron and steel, including steam-engines and machinery, make up not far short of one-fifth of the total value. Among other exports of importance are coal, copper and copper wares, as well as bronze and brass wares, earthenware and porcelain. Next to coal, herrings are the principal export not a manufactured product. The only agricultural export of home production of any consequence is wool, which in the last thirty years of the nineteenth century was exported in larger and larger quantities in successive quinquennial periods.

82*a*. Among the **imports**, grain of all kinds (principally wheat) takes the first place, and has done so in every quinquennial period since 1871–75. Wheat is derived from many different countries, in very different proportions in different years, but the largest quantity, if we include flour, has hitherto

[1] Formerly the proportion was about one-half.

usually come from the United States. Canada, India, Russia, Argentina, and Australia are also large contributors. Maize comes chiefly from the United States and Roumania. Sugar, both refined and unrefined, comes chiefly from Germany and other continental countries, but a good deal of unrefined sugar comes from the West Indies. The great bulk of the bacon and hams comes from the United States, but frozen mutton comes chiefly from New Zealand and Australia, though Argentina also sends very large quantities. Besides frozen mutton, wool, tea, and jute are the principal commodities, of which the largest supplies are derived from British possessions, and of these wool is by far the most important. The great bulk of the raw cotton imported comes from the United States, while Egypt supplies most of the remainder. India sends very little to England. Among other imports of consequence are leather, raw cotton, india-rubber, coffee, tin, tea, rice, hides, indigo, butter, timber.

82*b*. The **exports** of the United Kingdom are very widely scattered over the world, but it is worthy of note that India, which in the seventeenth and eighteenth centuries sent cottons (calicoes) to England, has, since about the beginning of the nineteenth century, been the chief market for English cottons. Large quantities of British exports consist of goods that have first been imported. A trade of this kind is called *entrepôt* trade. Of the articles in which this trade is carried on, wool has long been the chief.

82*c*. It was formerly impossible to say in what proportion the United Kingdom carried on trade with different countries, for the British returns merely took note of the countries to which belonged the seaports from which goods came and to which goods were sent.[1] Hence we could not tell from our reports whether we carried on any trade at all with Switzerland, although we knew from other sources that our trade with that country was very large. So, too, the trade reckoned as carried on with Germany was only that carried on through German ports, but we knew

[1] Since 1904 our trade returns have been issued, first in the old form and much later in a form showing the merchandise consigned to and from different countries. In 1905 the value of the merchandise consigned to Switzerland was £1·8 million, that from Switzerland £7·7 millions ; the value of the imports direct from Germany £35·8, that of the merchandise consigned from Germany £53·8 millions.

that a great deal of German trade with this country goes on through Dutch and Belgian ports. For that reason it is always better to reckon the trade of Germany, Holland, and Belgium with this country as one. If we do that we find that these countries collectively rank first among those which receive British exports, British India coming second, and the Australasian colonies third. Among countries supplying British imports the first place always belongs to the United States, whence so much corn (17, 18) and cotton (32), as well as other agricultural products, are derived; Germany, Holland, and Belgium taking the second place, and France the third. See also paragraph 80 (5).

Chief Industrial Towns and Seaports.

83. **Capital.**—London, the seat of an immense amount of manufacturing industry, but too varied in character for any of the branches of such industry to be specially mentioned.

84. **Cotton Manufacturing Towns.**—(*a.*) The Manchester group. Manchester (including Salford), the centre of trade; Oldham, Bolton, Bury, Rochdale, Blackburn, Preston, in Lancashire, Stockport and Ashton in Cheshire, and Glossop in Derbyshire, all engaged in spinning; Burnley, Preston, the chief weaving centres, Burnley producing principally the cheaper, Preston the finer fabrics. (*b.*) Nottingham, on the Trent (cotton hosiery and machine-made net and lace). (*c.*) Scotch towns. Glasgow, on the Clyde (fine lawns, muslins, and other special fabrics), Paisley, in Renfrewshire (cotton thread).

84*a*. The chief advantages of the Manchester group are these. The towns belonging to it all lie on, or quite close to, a coalfield; they have convenient ports in Liverpool and Manchester; and they have a very moist climate, which is found to be of peculiar importance in the cotton industry. All the chief

London	4,560,000	Stockport	110,000
Greater London	7,000,000	Blackburn	135,000
Manchester-Salford	945,000	Preston	115,000
Oldham	150,000	Burnley	105,000
Bolton	180,000	Nottingham	260,000
Bury	60,000	Glasgow and suburbs	1,000,000
Rochdale	90,000	Paisley	85,000

manufacturing towns, except Preston, lie just at the base of the Pennine Chain, and on the side exposed to south-west winds (*6a*, *6b*). Liverpool is found by experience to have too dry air for cotton-spinning. But in addition to these local advantages the cotton industry of England has a great advantage in the general conditions that favour the maritime trade of the country. Cotton goods are largely used in all parts of the world, and though Liverpool and Manchester are the great ports of the cotton district, all other great ports of the country are made use of to distribute its products.[1] The chief advantages of Nottingham are its situation on a coalfield and its facilities for communication.

85. Woollen Manufacturing Towns.—(*a.*) The Yorkshire group. Leeds, a great centre of trade with a varied industry, including iron and leather; Bradford, Halifax, Huddersfield, Wakefield, and Keighley, all chiefly engaged in worsted manufactures; Batley, Dewsbury, and Morley chiefly engaged in woollen manufactures in the special sense of the term (85*b*, 85*c*); Heckmondwike, as well as Halifax, engaged in the manufacture of carpets. Rochdale in Lancashire has important manufactures of flannels. (*b.*) The west of England, formerly producing chiefly woollen as distinguished from worsted cloth, but now also manufacturing high-class worsteds; chief centres, Stroud and the Stroud Valley in Gloucestershire, Bradford and Trowbridge in Wilts. (*c.*) Other parts of England. Leicester (woollen hosiery), Kidderminster in Worcestershire, and Wilton in Wilts, both noted for carpets. (*d.*) Scotland. Hawick, Jedburgh, Galashiels, and Selkirk, in the Tweed basin, noted for their tweeds (first called twills, and then tweeds by mistake, but afterwards deliberately, as the name was appropriate); Dumfries, Ayr, Kilmarnock, Glasgow, and Aberdeen. (*e.*) Many small towns in Ireland.

85*a*. The woollen industry of the United Kingdom is much

Leeds	445,000	Huddersfield	110,000
Bradford	290,000	Leicester	225,000
Halifax	100,000	Norwich	120,000

[1] In 1902 Liverpool and Manchester together exported less than two-thirds of the total value of cotton goods of all kinds exported from the United Kingdom, the remainder being sent from London, the Humber ports, Southampton, Glasgow, Harwich, Middlesbrough, &c.

more wide-spread than the cotton, and in former times it was much more evenly distributed. Now the West Riding of Yorkshire is the great seat of both branches of the industry, this predominance being due to the local coalfield. It is only since machinery came into use in the early part of the nineteenth century that most of the great towns have grown up. The industry is nevertheless of old date in this district. It has been carried on since Henry VII. planted some Flemish weavers here in 1489, in what was then a very sparsely peopled area of woodland and sheep-pastures, but enjoying the advantage of plenty of pure water for washing and scouring the wool, and for use in dyeing.

85*b*. This district also had the advantage of being near the pastures on which are reared the Lincoln breed of sheep, the breed that yields the most lustrous of all sheep-wools. It is a long wool, well adapted for the worsted branch of the manufacture. In this branch it is almost solely long wools that are used. These have to be combed before they are spun into yarn, and in the cloths made from them the intercrossing of the yarns can be clearly seen. Worsted goods very often have a lustrous appearance, and in this branch of the industry woollen yarns are often mixed with other lustrous fibres, such as silk, mohair (30) and alpaca (30). Cotton is also very largely mixed with worsted yarns, but only in the warp. Woollen goods in the special sense of the term are mostly made from short-fibred wools, which are not combed. In them the intercrossing of the fibres cannot be seen, and very often there is a nap on the surface. As most of the English wools are adapted for the worsted rather than the woollen branch of the industry, the worsted branch is that for which England has long been specially noted. The United Kingdom exports enormous quantities of worsted yarn, besides combed wool not spun into yarn, but very little woollen yarn. The value of the woollen cloths exported is also always less than that of the worsteds, but not in the same proportion.

85*c*. Of the towns of the West Riding, Leeds has always been the most populous and important. This is due to its advantages for trade. It stands on a good navigable river, the Aire, and in such a position as to communicate easily both with

the Vale of York and with more than one of the Yorkshire valleys. Bradford, however, is the chief town connected with the woollen industry, and more especially the worsted branch. This seems to be due chiefly to the excellence of its water for washing and dyeing. It is said that probably about five-sixths of the wool manufactured in the United Kingdom is treated in Bradford in some way or other.

85*d*. Good water is also among the advantages of the west of England woollen manufacturing towns, and the Stroud Valley has long been noted for its dye-works, especially for scarlet cloth (soldiers' coats). The Leicestershire breed of sheep, yielding a worsted wool well adapted for hosiery, accounts for the long continuance of that industry at Leicester. Pure water, water-power, and neighbouring sheep-pastures explain the rise of the manufacturing towns of the Tweed basin.

86. Linen Manufacturing Towns.—Belfast, in Ireland, the chief centre of the industry, Dundee (linen and jute), Arbroath, Montrose, Dunfermline (table-linen), all in the east of Scotland; Leeds and Barnsley in Yorkshire. Dundee, Sunderland, Stockton, and other seaports produce large quantities of sail-cloth.

86*a*. In quality Irish linens are unsurpassed. The industry in Ireland is very old, and was once wide-spread, but has become centred in the north-east, where it has the advantage of local supplies of flax, an excellent port in Belfast for the import of foreign flax and of coal, and excellent water, pure air, and a humid equable climate which all contribute to make the bleaching grounds round Belfast among the best to be found anywhere. Great quantities of foreign linens, in many cases woven with Belfast yarns, come to Belfast to be bleached. The linen industry of Forfarshire and Fife in Scotland is also of old standing. It has long used chiefly Baltic flax, and the rise of the industry was no doubt favoured by the fact that Dundee is one of the nearest British ports to the Baltic. The Yorkshire towns are almost solely occupied with the weaving branch of the industry.

87. Towns engaged in the silk industry.—Macclesfield and

Belfast	385,000	Sunderland . . .	150,000
Dundee	165,000	Stockton	50,000

Congleton in Cheshire, Derby, Chesterfield and other towns in Derbyshire, Leek (whose excellent water has made it the English centre of silk-dyeing and the manufacture of silk thread) in north Staffordshire; Coventry (ribbons) in Warwickshire; Bradford in Yorkshire, which manufactures chiefly silk waste, or what used to be treated as such; the district of Spitalfields in London, where the industry, now almost confined to the manufacture of umbrella silk, has lingered on since it was introduced by French Huguenots after the revocation of the Edict of Nantes in 1685; and Braintree in Essex.

88. **Towns engaged in iron industries.**—(*a.*) **In iron-smelting.** —Middlesbrough, on the Tees, Yorkshire; Leeds and other places in the West Riding of Yorkshire, Merthyr Tydfil, Cardiff, Newport, and other places in South Wales or adjoining parts of Monmouth; Barrow, Workington, and other places near the deposits of red hematite (79*a*) in the north-west of England; in the "Black Country" in south Staffordshire and north Warwickshire; at Airdrie, Coatbridge, Motherwell, and other places in Lanarkshire, and at Carron in Stirlingshire. (*b.*) **In the manufacture of articles made from iron.**—Birmingham, long noted for its very varied metallic industry; many towns round Birmingham, including Wolverhampton, Walsall, Dudley, Redditch (needles), Stourbridge; Sheffield, in the West Riding of Yorkshire, long noted for its cutlery, now also for large articles in steel (armour-plates, rails, &c.); Middlesbrough, Barrow (rails); Swansea, Llanelly, Cardiff, Newport, and many other places on or near the South Wales coalfield, all noted for the making of tin- and zinc-plate (63); Falkirk in Stirlingshire (stoves and other articles of cast-iron). (*c.*) **In making machinery.** —Oldham, Bolton (chiefly cotton); Keighley, north-west of Bradford (worsted); Leicester (for elastic webbing, &c.); Manchester, Birmingham, Glasgow (marine engines and boilers, locomotives, sugar machinery, &c.); Newcastle, Darlington,

Derby	125,000	Birmingham (post-census boundaries of 1911)	850,000
Coventry	105,000	Walsall	90,000
Wolverhampton	95,000	Sheffield	455,000
Middlesbrough	105,000	Swansea	115,000
Merthyr Tydfil	80,000	Cardiff	180,000
Newport	85,000		
Barrow	65,000		

Crewe, Swindon, Derby, &c. (steam-engines). (*d.*) **Agricultural implements.**—Grantham, Gainsborough, Lincoln, Ipswich, &c. (*e.*) **Arms.**—Birmingham (chiefly small-arms); Newcastle (heavy ordnance). (*f.*) **In shipbuilding** (mostly of steel).—Various places on the Clyde, the Tyne, the Wear, and the Tees, Belfast in Ireland, besides West Hartlepool, Hull, Liverpool, Barrow, &c. There are government dockyards with naval factories at Chatham, Sheerness, Portsmouth, Devonport, and Pembroke.

88*a*. **Copper and other metallic industries.**—Swansea, long the chief seat of copper-smelting, now also of the smelting of ores of silver, zinc, lead, sulphur. The copper ore used to be chiefly derived from Cornwall and Devon, and Swansea had thus the advantage of being the nearest port at which smelting fuel could be cheaply obtained. Now the ore is derived from all parts of the world, mainly the United States, Chile, and Australia. Llanelly (Carmarthenshire), has a similar industry to that of Swansea; Birmingham carries on all kinds of brass, bronze, and other metallic industries.

88*b*. The iron-smelting industry is carried on either in the vicinity of deposits of iron ore, or on coalfields supplying coal suitable for making furnace coke, for it is almost solely coke that is used in smelting iron ore in this country. Limestone is also required as a flux in smelting iron ore, but this can generally be obtained at no great distance. The industry is tending to increase at and near seaports more than at inland centres, and that for two reasons—first, because British deposits of ore are becoming exhausted; and second, because the wholesale processes by which steel is now made for many purposes are best carried on at most of our smelting centres with ores which can be more cheaply obtained from other countries—Spain, Algeria, Greece, &c.

88*c*. Middlesbrough is a town and port which has grown up through the development of the Cleveland ores (79*a*), since about the middle of the nineteenth century. Barrow has had a similar growth. Both these centres still use mainly English ores, but South Wales (including Monmouthshire) is now almost

Newcastle-Gateshead	385,000	Liverpool-Birkenhead-Bootle	950,000
The Hartlepools	85,000	Portsmouth	230,000
Hull	280,000	Plymouth-Devonport	195,000

wholly dependent on foreign ores to feed its blast-furnaces, and north Lanarkshire mainly so. When wrought iron was the material chiefly used in shipbuilding the local ores yielded most of the iron required, but now that steel is the great shipbuilding material foreign ores are imported to make the steel from. On the other hand, the excellent foundry iron obtained from Scotch ores (79*b*) furnishes most of the material used at Falkirk and elsewhere for making cast-iron goods. For this trade Falkirk has the further advantages of a central situation in the Lowlands of Scotland, and the port of Grangemouth close by for cheap conveyance to England and elsewhere.

88*d*. Birmingham, and the towns of the Black Country, have been renowned for centuries in connection with iron and other metal-working industries. The district in which they lie contained abundance of iron ore, which was smelted with charcoal, and yielded an iron well adapted for making nails and other articles for the working of which the coal of south Staffordshire furnished a valuable fuel. Facilities for communication expanded and diversified its trade. Birmingham lies in a level tract of country almost exactly midway between the rivers Severn, Upper Avon, and Trent, with all of which it has been connected by canal for more than a hundred years. The canals which wind in many directions through the Black Country carry about a fourth of the weight of all the goods carried on the inland waterways of the United Kingdom. Sheffield was noted for its cutlery even in Chaucer's time (fourteenth century). Its original advantages for this industry were water-power for working tilt-hammers, a good material for grindstones in the neighbourhood, and its situation on a navigable river, the Don. Coal is also found locally, but the iron used in this industry is not native, but has long been imported from Sweden, whose charcoal-smelted iron is necessary for the manufacture of good cutlery. Much of this iron is imported by the Don navigation.

89. **In the making of earthenware and porcelain.**—Burslem, Stoke, Hanley, Newcastle-under-Lyme, and other places in north Staffordshire ("the Potteries"); Stourbridge (stoneware from fireclay), Derby, and Worcester (porcelain). The district

The Potteries . . . 250,000

known as "the Potteries" has been the chief seat of this industry for considerably more than a hundred years. Its advantages are that the heaviest and bulkiest materials required in the industry, ordinary potter's earth and coal, are here found together in great abundance. The costlier materials are brought from a distance—China clay from Cornwall and Devon, flints from the Thames. The industry was greatly stimulated by the completion before 1789 of the Trent and Mersey Canal. **Glass.**—Birmingham, Dudley, Stourbridge, St. Helens, South Shields, Glasgow. **Alkali.**—Widnes in Lancashire, Flint, St. Helens, South Shields, Newcastle, Middlesbrough. In this manufacture salt and coal are necessary materials, and hence the industry is confined to places in the vicinity of which these heavy commodities are obtained. **Paper.**—Maidstone and other places in Kent, also in the counties of Derby, Lancashire (in the north of the county), Berks, Mid-Lothian, Aberdeen, &c. Abundance of pure water is one of the chief requirements of this industry. **Shoes.**—Northampton, Leicester, Stafford. This industry is carried on where cattle most abound, yielding large supplies of local raw material, and where also coal is cheap. **Beer.**—Burton (on Trent), &c. The Burton industry is of very old date as well as very extensive, and is mainly due to the excellent water-supply. **Whisky.**—Many places in Scotland and Ireland. **Centres of Printing.**—London and Edinburgh, including Leith.

90. **Fisheries.**—The chief ports at which fish are landed in England are (in the order of importance) London, Grimsby, Hull, Lowestoft, and Yarmouth. Of late years the quantity of fish caught has been greatly increased by the use of steam-trawlers, that is, steam-boats dragging nets behind them along the bottom of the sea. The shallows of the Dogger Bank, in the middle of the North Sea, where the water is only from 60 to 120 feet deep, have for centuries been the great fishing-grounds both for Dutch and English fishermen. Whitstable, on the north of Kent, is noted for its oysters. Billingsgate, in

St. Helens	95,000	Edinburgh-Leith . .	400,000
South Shields . . .	110,000	Grimsby	75,000
Northampton . . .	90,000	Yarmouth	55,000
Burton-on-Trent . .	50,000		

London, is the great market to which all kinds of fish are sent. In Scotland the principal seats of the herring-fishery, which is the one great fishery of that country, are Wick, Lerwick, Fraserburgh, and Peterhead. Large quantities of cured herrings are exported to the mainland of Europe, chiefly to Germany, the Baltic ports of Russia, and to Italy. The quality of the herrings cured in Scotland is attested by a government brand on the barrels. Pilchards, a variety of herring, are caught chiefly off the Cornish coasts. The Irish fisheries are of relatively small importance.

91. **Seaports.**—On the average of the period 1896–1900, the ten following seaports, London, Liverpool, Hull, Harwich, Folkestone, Glasgow, Southampton, Leith, Bristol, and Manchester, were the first ten in respect of the value of their imports, receiving 82 per cent. of the total value of the imports of the United Kingdom. The first three of the seaports just named are also first in the value of their exports, Liverpool, however, ranking under this head before London; Southampton ranked fourth, and Manchester fifth among the exporting ports, and Harwich, under this head, was not one of the first ten.

91*a*. London, as a port, includes the whole of the Thames to Tilbury and Gravesend, as well as Queenborough, still lower down. It has always stood first among the British seaports. It is the greatest seaport in the world, and the special features of its foreign trade are the great value of its imports and the great extent of its *entrepôt* trade (82*b*). In the value of its exports it is surpassed by Liverpool, which is more favourably situated with reference to the chief manufacturing region of England; but the vast population of London itself, a much larger population than exists on any equal area elsewhere, serves to account for a vast import trade, especially of articles that are consumed by all, such as tea. Its nearness to some of the greatest continental ports adds greatly to its trade, and is probably the main cause of the great *entrepôt* trade. Commodities are always conveyed most cheaply in the biggest ships, provided these ships can be filled, and there are many commodities for which London can make use of more big ships with

Bristol (boundaries of 1904)	355,000	Southampton . . .	120,000

advantage than any other port. Nearly all the tea, coffee, cacao, and spices that are brought to England come first to London, and large quantities of these are sent abroad again in other big ships carrying mixed cargoes. London is also the great port for raw wool (compare 79*g*, 345).

91*b*. Liverpool, as a seaport, includes the whole of the estuary of the Mersey below Runcorn, and thus embraces the shipping of Birkenhead. The port of Manchester, opened in 1894, extends from Runcorn inclusive to the head of the ship-canal. Liverpool has the advantage of being the great port for the whole of the exceedingly populous and productive manufacturing region extending from the Ribble in Lancashire to the north of Warwickshire, as well as for the Atlantic trade of the West Riding of Yorkshire. It rose to importance only when manufactures began to be extensive in that area, that is, after the beginning of the eighteenth century. The mountains of Wales, as well as the lack of convenient inlets on any other part of the coast to the west of that region, protect Liverpool against any rivals there, and the difficulty of making the Avon suited to large modern ships has prevented Bristol from becoming a serious rival even in the trade of the southern part of the area served by Liverpool. Manchester is now a rival of Liverpool chiefly in the middle portion of that area.

91*c*. Southampton has an excellent natural harbour, now greatly improved artificially, which has the great advantage of being the nearest on the south coast to London. Before the rise of Liverpool it was next in rank to London among English seaports. At that time Bristol was the chief seaport on the west coast, the difficult navigation at the mouth of the Severn guarding it against a rival there.

91*d*. Glasgow first derived wealth as a seaport through the trade which it began to carry on with the West Indies in the eighteenth century in tobacco and sugar, then commodities of much greater relative value than they are now; but it was only in the latter part of that century that a beginning was made with the deepening of the Clyde, which has enabled it to become the great port and seat of shipbuilding which it now is. It would not have attained this position, however, had it not been for the coal and iron mines in its vicinities, which have led to

the rise of its iron and steel and numerous other manufacturing industries.

91e. The direct foreign trade of all **Irish ports** is small, and especially under the head of exports. Dublin, Belfast, Cork, Waterford, Limerick, and Londonderry all import directly considerable quantities of wheat and maize; Belfast also of flax; but no Irish port has exports to foreign countries amounting to one million sterling in value. Even the linens of Belfast are sent to the United States and elsewhere mainly by way of Liverpool and Glasgow. On the other hand, the Irish ports carry on a large trade with Liverpool, Glasgow, Fleetwood, Milford Haven, and other British ports, to which they send cattle, swine, butter, and other native produce, and whence they receive British and foreign commodities; and there are fast passenger steamer lines between Holyhead and Kingstown, Holyhead and Greenore, Fishguard (Pembrokeshire) and Rosslare (co. Wexford), Fleetwood and Belfast, Heysham, on Morecambe Bay, and Belfast, Dublin, and Londonderry, Ardrossan and Glasgow and Belfast, Stranraer and Larne, and Milford and Waterford. Queenstown, in the harbour of Cork, is a calling-place for numerous Atlantic steamers.

FRANCE.

92. The **area** of France, including Corsica, is about seven-tenths larger than that of the British Isles, the population somewhat smaller. The **density** of population is thus less in France than in the British Isles, but in France the population is more equally distributed. There is no area in France corresponding for scantiness of population to the Highlands of Scotland. The sparsest population is found on the high tablelands, among the narrow Alpine valleys in the south-east, and on the level sandy plains of the Landes in the south-west between the Adour and the Garonne.

93. **Surface and Communications.**—The greater part of the mainland of France is made up of plains, gently rolling land, or broken hilly country offering little hindrance to communication. Lofty mountains, the **Pyrenees** and the **Alps**, form the land frontier on the south and south-east. The only railway communi-

Dublin	310,000	Cork	75,000

cation with Spain hitherto is round the ends of the Pyrenees,[1] where there is a difference of gauge as a security in case of war. As yet the sole railway from France across the Alps is that which connects the valleys of the Isère and the Dora Riparia by means of the earliest of the longer Alpine tunnels, the so-called **Mont Cenis** tunnel, opened in September 1871. (Compare paragraph 121.) The French **Jura** and the **Vosges**, on the eastern frontier, reach a much greater height than any British mountains, and obstruct to a considerable extent the communication with the countries beyond the frontier. No railway crosses the Vosges for a distance of seventy-five miles. The chief highlands within the French frontier are those of the so-called **Central Plateau**, which is really situated more to the south-east, the mountains on their eastern margin towering above the narrow valley of the Rhone. The surface of the plateau has an average height of from 2500 to 3000 feet.

93*a*. The effect of the Central Plateau on the means of communication and traffic in France is very marked. In consequence of this obstruction the railway from Paris to Marseilles first runs south-east to Dijon and then due south down the Saône-Rhone valley. This railway carries a greater amount of traffic per mile than any other in France. South of Paris the railways which come next to it in the amount of traffic are those to the west and south of the Central Plateau—by Orléans, Tours, and Bordeaux, and thence east by Toulouse.

94. The **inland navigation** of France is of much more importance than that of England. The tonnage of goods carried on the rivers and canals of the country is not much short of one-third of that carried by rail. The importance of the river navigation is shown by the fact that all the great rivers entering the sea on the west coast are connected by canal directly or indirectly with the Rhone or Rhine. The Seine is connected with the Rhine by the Marne and Rhine Canal (crossing the Vosges in the north), with the Rhone by the Burgundy Canal uniting the Yonne (a tributary of the Seine) and Saône (a tributary of the Rhone); the Loire is also connected with the

[1] A railway through the Central Pyrenees connecting Toulouse by way of St. Girons with Lerida is in progress, and in 1913 the tunnel borings met in the middle.

Saône, and the Garonne with the lower Rhone (at Beaucaire above the delta), though the most important outlet of the canal which joins the Garonne at Toulouse is at Cette on the Mediterranean. By means of the Saône the navigation of the Rhone and Rhine is also connected by a canal which enters Germany to the south of the Vosges. The chief inland navigation of France, however, is in the north between the basins of the Seine, Somme, and Escaut (Scheldt), where the flatness of the surface greatly favours canal construction, and there is a large amount of mineral traffic.

95. **Climate.**—France generally has all the advantages of a westerly maritime situation, together with a more southerly latitude than the British Isles, and it is therefore to be expected that France should excel this country, as it does, in respect of the abundance and value of its agricultural products. On the surface of the Central Plateau the climate is bleak and the soil unproductive.

96. **Agricultural Products.**—Though the ratio of the total surface of France to that of the British Isles is only 1·7: 1, the extent of corn-crops in France has in recent years been more than 3½ times as great as in the United Kingdom. The importance of its **wheat-crop** is shown in paragraph 17. In addition to wheat and other British crops France produces large quantities of maize, besides the less valuable rye and buckwheat. Besides corn-crops France produces all the ordinary British green-crops, potatoes and mangold each covering more than twice as great an area as in the British Isles. The **vine** (25), the most valuable of all the French crops, covers an area as large as that occupied by wheat and barley together in the United Kingdom. The average of **sugar-beet**, mainly grown in the departments of the extreme north, greatly exceeds the British average of mangold. Large areas in the south-east are occupied by **olive-yards** and **mulberries**, the latter for the rearing of silkworms. Colza, hemp, flax, and tobacco are also important crops. See also 26.

97. **Minerals.**—The mineral wealth of France is greatly inferior to that of Great Britain, and the inferiority is most serious in the case of coal. The **coalfields** (59), though small, and not very productive, are, however, scattered over different

parts of the country, and the central region—that, accordingly, which is furthest from supplies of sea-borne coal—has the greatest number of centres of local supply. The **most productive coalfield** is a continuation of that of Belgium, and the chief centre of production close beside Valenciennes. Next in productiveness are those on or near the eastern side of the highlands which border the basins of the Rhone and Saône on the west—round St. Etienne in the middle, round Creuzot further north, and at Alais in the south. The great bulk of the **iron ore** produced in France is obtained from the basin of the Moselle, in the extreme north-east of the country. Other deposits are worked round Creuzot and elsewhere. Sea salt is obtained from salt-pans on the western Mediterranean coasts and on those of the Bay of Biscay.

Manufactures.—In point of value the most important are woollens and silks, the former carried on chiefly in the north, the latter in the Rhone valley.

98. **Foreign Commerce.**—In recent years raw wool, silk, wine, coal and coke, raw cotton, and oil-seeds have made up together above one-third of the value of the special imports, and among other leading imports have been timber, hides and skins, and coffee. Four articles have made up about one-fourth of the value of the exports of native origin, namely, woollen and silk manufactures, wine, and raw wool. Among others of importance are haberdashery and apparel and raw and waste silk.

98*a*. The raw wool imported into France is mainly derived from South America, and is partly introduced through Belgium. Oil-seeds are a rapidly growing import from India and other tropical countries, including the French settlements in West Africa and Indo-China. The United Kingdom and Belgium supply most of the coal and coke imported into France, the United Kingdom having the advantage of sea-carriage (11, 79*a*), and Belgium that of canal and river communication (94) with the chief manufacturing regions of northern France. The **countries** with which the foreign commerce of France is mainly carried on are the adjoining countries of Europe, the United Kingdom being first both in exports and imports. It receives about one-fourth in value of the whole exports. The United

States now ranks second among the countries supplying the imports. The large import of wine into France (from Italy, Spain, Algeria, &c.) dates from about 1875, when an insect called the phylloxera began to devastate the vineyards. The ravages of this insect have now been checked, and the import of wine is consequently diminishing. Another noteworthy fact is the great decline in the value of the export of silks since the period 1871–75.

99. **Chief Industrial and Commercial Towns.**

Capital.—Paris, on the Seine; like London, a city with a very miscellaneous industry. It has the advantage of a central situation in the great northern plain, with waterways, the Seine and its tributaries, leading in several directions, and now of course with a greater number of railways radiating from it.

99*a*. Seats of the manufacture of—

Woollen Goods.—Lille, Roubaix, Tourcoing, Sedan—all near the north frontier, the first three quite close to the Franco-Belgian coalfield, and all having excellent water communication both with Belgium and the adjoining parts of France; Amiens, on the Somme; Elbeuf, on the Seine above Rouen; Troyes, on the upper Seine (hosiery). **Silks.**—Lyons (French, *Lyon*), on the Rhone, the chief seat of silk manufactures in the world, at the point where the traffic of the Saône-Rhone valley is joined by that from Switzerland and central Europe by way of the Jura and the Alps (Geneva: see 122); St. Etienne (ribbons) (97), west of Lyons; Avignon, on the Rhone. **Cottons.**—Rouen, on the Seine, St. Quentin, east of Amiens; Sénones, St. Dié, &c., west of the Vosges. **Linens.**—Lille, Cambrai, Valenciennes, and other northern towns. **Machinery.**—Creuzot (97), Lille. **Porcelain and earthenware.**—Limoges, on the Vienne, with deposits of coal, and one of China clay not far off; St. Cloud, a suburb of Paris (where Sèvres porcelain is now made). **Watches.**—Besançon, in the Jura. **Refined oil and soap.**—Marseilles (French, *Marseille*).

Paris	2,900,000	St. Etienne	150,000
Roubaix-Tourcoing	205,000	Rouen	125,000
Lille	220,000	St. Quentin	55,000
Amiens	95,000	Limoges	90,000
Troyes	60,000	Besançon	60,000
Lyons	525,000	Marseilles	550,000

100. Inland Centres of Trade.—Toulouse, on the **Garonne**, at the junction of the Canal du Midi and the west end of the narrow opening between the foot-hills of the Central Plateau and those of the Pyrenees, so that all the western traffic from the Mediterranean touches this point (93*a*); Orléans and Tours (93*a*), on the Loire; Angers, at the confluence of the Mayenne and Sarthe; Le Mans, on the Sarthe; Nancy, on the Meurthe; Dijon (93*a*), on the Burgundy Canal, an important centre of the Burgundy wine trade; Reims and Épernay, centres of the trade in champagne wine; Cognac, on the Charente, noted for its brandy.

101. Seaports.—The principal in the order of importance are Marseilles, Havre, Bordeaux, Dunkirk, Rouen, St. Nazaire, Cette, Dieppe, Boulogne, Calais. Marseilles, with a small but good natural harbour, now greatly extended artificially, east of the Rhone delta, owes its leading place to the fact that the geographical features of France (93*a*, 99*a*, 122, 124) make it the Mediterranean port not merely for the Saône-Rhone valley, but also for all the plains of northern France as well as part of central Europe. It imports wine from Italy, Spain, &c., oil from Italy, wheat, oil-seeds, sugar, coffee, pepper, and other eastern products, its situation being favourable for trade with the east through the Suez Canal. It is the headquarters of the great steamship company known as the *Messageries Maritimes*. Havre, at the mouth of the Seine, the chief seat of trade with America. Rouen, higher up the river, can now be reached by vessels of 2000 tons. Bordeaux, on the Garonne, a little above the place where the estuary of the Gironde is formed by the confluence of the Dordogne, has long been the chief place of export of French wines. Pauillac, on the left bank of the Gironde, is its outport. Dunkirk (French, *Dunkerque*) is the only French seaport on the North Sea. It is rapidly rising, has large imports of South American wool, and exports of the manufactured products of the district, including iron, beetroot-

Toulouse	150,000	Reims	115,000
Orléans	70,800	Havre	135,000
Tours	75,000	Bordeaux	260,000
Nancy	120,000	Calais	70,000
Dijon	75,000		

sugar, and oils. St. Nazaire, at the mouth of the Loire, is the outport of Nantes, with which it is now connected by a ship-canal, admitting vessels of 20 to 21 feet draught.

BELGIUM.

102. Area.—About one-eighth of that of Great Britain. The **population** is very dense in all parts of the country except the south-east (Luxembourg) and north-east (the sandy plain of the Campine in the provinces of Antwerp and Limburg). This high density is due, as in England, both to advanced manufacturing industry and advanced agriculture.

103. Surface and Communications.—The surface of Belgium is made up of a tableland in the south-east intersected by deep river-valleys, and sloping down to low flat plains in the north and west. The plains afford admirable facilities for inland navigation both by river and canal (94); and the Meuse, which traverses the tableland, is navigable to beyond the Belgian frontier. The weight of goods annually carried on the inland waterways is on an average only about one-ninth less than that carried by rail, notwithstanding the closeness of the Belgian railway network (see the table in the appendix). Moreover, the flatness of a large part of the surface so favours the use of the roads for long-distance traffic that, for example, laden waggons sometimes go from Brussels to Liège, a distance of sixty miles, or from Antwerp to Liège, a distance of seventy-two miles. Horse and steam tramways as feeders of the railways are numerous.

104. Products. — Three-fourths of the surface is in crops, bare fallow, and grasses, the principal crops being wheat, rye, and oats. Among the minor crops are beet, including sugar-beet, buckwheat, and flax. **Flax** is grown mainly in the district drained by the Lys, a left bank tributary of the Scheldt (Escaut), and the fibre obtained from it has long been known for its excellent quality, which is due to the circumstance that the district referred to is remarkably free from lime salts, in consequence of which the water of the Lys is peculiarly well suited for the cleansing of the fibre (27).

Nantes 170,000

104*a*. The principal **mineral products** of Belgium **are coal and zinc.** The place which this country holds relatively to others in the production of these is indicated elsewhere (59, 60, 63). The region of production may be described as occupying the valleys which intersect the Belgian plateau from the eastern frontier near Aix-la-Chapelle to about the middle of the Franco-Belgian frontier, the principal valleys in this respect being those of the Sambre and Meuse, more especially that part of the Meuse valley which continues the line of the valley of the Sambre, together with a strip to the west of the Sambre. The carboniferous area is occupied by a large proportion of productive **coalfields,** the chief coal-mining regions being round Mons, in Hainaut, near the French frontier, the Borinage, and round Charleroi in eastern Hainaut. The Belgian coal-seams are more difficult to work than the British. They lie on the average at a greater depth, and are not so continuous. An extensive new coalfield is now being opened up in northern Belgium. **Zinc** is obtained at Moresnet, close to the eastern frontier between Verviers and Aix-la-Chapelle (Aachen). There are also productive lead-mines near Verviers. Some iron ore is mined in the province of Namur, but the great bulk of the iron ore smelted in Belgium is imported from the grand-duchy of Luxemburg.

104*b*. The **manufactures** stimulated by the existence of this mineral wealth, as well as of one of the oldest industrial populations in Europe, are numerous and varied. Among textile industries those of linen and woollen yarns and tissues predominate. The linen manufactures are fostered by the local supplies of flax. The woollen manufactures are now fed mainly by supplies of foreign wool from the River Plate, London, and elsewhere, but are still chiefly carried on in the north-east, where of old the industry was connected with the wool-supplies derived from the neighbouring sheep-pastures of the tableland. The iron industries and glass-making (68) are pursued principally on or near the coalfields.

105. Foreign Commerce.—Grain, wool, raw minerals, building wood and petroleum, and raw hides make up considerably more than one-third of the value of the imports. Iron and steel, coal and coke, grain, glass and glass wares, linen, yarn and flax,

raw hides, and machinery, make up more than a third of the value of the exports. Among the **countries** with which the foreign commerce is carried on the neighbouring countries of Europe take the lead. The share of the United States in the import trade is rapidly rising. The principal **language** of commerce is French, though more than half the people (nearly all those living in the west and north) speak Flemish.

106. **Chief Industrial and Commercial Towns.**

Capital.—Brussels (French, *Bruxelles*), in Brabant. It carries on a very varied industry and commerce, which must be greatly increased by the completion of the works begun with the view of making it a seaport. Malines (Flemish, *Mechlin*) is the chief railway centre, and is noted for its lace.

Seats of the manufacture of—

Linens.—Ghent (French, *Gand*), Tournai, Courtrai, and other towns in or near the flax-growing region. **Woollens.**—Verviers, in Liège. **Cottons.**—Ghent. **Iron, iron-wares.**—Liège and its suburb Seraing, Charleroi and Mons in Hainaut. **Machinery.**—Liège and Seraing. **Glass.**—Charleroi, Mons, and other towns on the coalfields. **Soda.**—Antwerp, which has immense works for the supply of the glass factories.

107. **Seaports.**—Antwerp (French, *Anvers*), a strongly fortified town on the right bank of the Scheldt, a little above the head of the deep estuary of that river in nearly the same latitude as London. It is the centre of an immense inland as well as oceanic navigation. Ships of 30 feet draught can lie alongside of its quays. Ghent, at the confluence of the Lys and Scheldt, made a seaport by means of a canal from the estuary of the Scheldt, at first (1886) 18 feet deep, but since greatly deepened. Ostend, on the coast of West Flanders, connected by a small ship-canal with the old seaport of Bruges, which, however, has had since 1900 a much better connection with the sea by a canal running northwards. This canal has its sea-end at the new port of Zeebrügge, and is over 26 feet deep. It may bring back to this decayed but once glorious city some of the prosperity which it enjoyed in the Middle Ages, when it had

Brussels (with suburbs)	650,000	Antwerp (with suburbs)	350,000
Ghent	165,000	Bruges	55,000
Liège (with Seraing)	200,000	Malines	60,000

a navigable channel running north-eastwards to the sea, a channel which became silted up about the end of the fifteenth century.

HOLLAND OR THE NETHERLANDS.

108. **Area.**—About one-seventh of that of Great **Britain.** The **population** is densest in the west.

108*a*.—**Surface, Products, and Communications.**—Holland is mainly an agricultural and commercial country. It has no highland region, and none of the mineral wealth that characterises the highland region of Belgium. In the eastern provinces of Drenthe, Overijssel, and Gelderland a large part of the surface is marshy and occupied by peat moors, which considerably reduces the area available for crops and pastures. The whole extent of land capable of being so utilised is little more than three-fifths of the entire area; but, on the other hand, a large part of the agricultural region is of very exceptional fertility. This is especially the case with those parts, chiefly in the provinces of Zeeland and Holland proper, which lie below the level of the sea and are protected from inundation by dykes. The soil of such enclosed areas (*polders*) is naturally moist, and produces **rich pasture grasses**, so that horses and cattle (29) are very numerous, and the cattle yield abundance of **milk.** The other crops of Holland are similar to those of Belgium, even sugar-beet and tobacco being among the number, though the latter occupies a very limited extent of ground. The **waterways,** natural and artificial, are of greater relative importance than in any other European country.

108*b*. In **manufacturing industry** Holland formerly had a high reputation. The dearth of local fuel, however, is adverse to the carrying on of manufactures by machinery. Nevertheless cotton, linen, and woollen spinning and weaving by modern methods are all largely pursued, and in recent years there has been a small production of coal from a coalfield opened up in the extreme south-east of the country, part of the great coalfield extending from the west frontier of Prussia to the neighbourhood of Antwerp in Belgium.

109. **Foreign Commerce.**—Holland has stood in the front rank of commercial nations from the very beginning of its separate existence (1579), but in examining the list of its special imports and

exports it must be borne in mind that the products of the extensive colonial possessions of the country are included under the head of special commerce (3). Moreover the Dutch tables are misleading as to the value of the imports and exports, the values being estimated according to the prices of fifty years ago. Hence it is that though from the Dutch returns it would appear that cinchona or Peruvian bark is by far the most valuable of the exports, or rather re-exports, its actual value is quite trifling. Cheese, butter, and margarine are really the chief exports of Dutch origin.

The neighbouring European countries take the lead in the foreign commerce of the country. The Dutch East Indies rank fourth or fifth among those furnishing the imports. The **language** is Dutch, which is almost identical with Flemish, and closely resembles English in some respects and German in others.

110. Chief Industrial and Commercial Towns.

Capital.—The Hague (Dutch, *Den Haag*), in South Holland.

Cotton and Linen Manufacturing Towns. — Enschede, Almelo, and Hengelo in Overijssel, Tilburg in North Brabant.

Inland Centres of Trade. — Haarlem in North Holland (flower and Dutch bulb trade), Leiden, Delft, in South Holland, Utrecht, and Groningen, in the provinces of the same name.

111. Seaports.—Amsterdam, in North Holland, the commercial capital; the port formerly entered by the Zuider Zee, but since 1877 by a ship-canal from the North Sea at IJmuiden (Ymuiden). Since 1892 the Merwede Canal has enabled large ships to reach the Rhine from Amsterdam. As an industrial town Amsterdam is noted for its diamond-cutting. Rotterdam, standing on the common mouth of the Rhine and Maas (Meuse), is the chief seaport, and owes this importance chiefly to the improvements in the navigation that have been made both upwards and downwards. Downwards it has since 1872 been connected with the sea by a ship-canal (the "New Waterway").[1] Upwards it has benefited chiefly by the great improvements of the Rhine (**114***b*). The Hook of Holland, at the mouth of the

The Hague	300,000	Groningen	80,000
Haarlem	70,000	Amsterdam	580,000
Leiden	60,000	Rotterdam	435,000
Utrecht	120,000		

[1] This channel is constantly being improved, and vessels drawing 30 feet can now reach the port at high-water spring-tides.

New Waterway, has now a service of rapid passenger steamers with Harwich in England. Flushing (Dutch, *Vlissingen*), in Zeeland, on the estuary of the Scheldt, on the mail route from England to Holland and North Germany. Schiedam, with an extensive gin trade, west of Rotterdam. Dordrecht, south-east of Rotterdam.

LUXEMBURG.

112. This state (of smaller extent than the county of Durham) is a grand-duchy lying to the south-east of Belgium, and forming part of the same river-furrowed tableland to which the adjoining parts of Belgium and Germany belong. It produces in the extreme south much of the iron ore smelted in Belgium, France, and Germany, as well as locally. It forms a part of the German Customs Union (113).

THE GERMAN EMPIRE.

113. As a commercial unit the German Empire, or rather the **Customs Union** (*Zollverein*), the affairs of which are now under the control of the Imperial Parliament (the *Reichstag*), includes the grand-duchy of Luxemburg in addition to the whole territory of the empire. Till October 1888 the old Hanse towns of Hamburg and Bremen remained outside of this union, but since that date they have been completely incorporated with the empire.

114. **Surface and Communications.**—The great plain which makes up the north and the greater part of east Germany is for the most part of but slight fertility, and endowed with little mineral wealth, except here and there salt. It is thus on the whole a region of low density of population. The remainder of the empire consists mainly of hilly country and tablelands, and has for the most part a density of population as high as that of the south-east of England, with a few smaller tracts in which the density reaches or approaches that of the English and Scotch manufacturing districts. This higher density is due partly to the more fertile soil and more favourable climate of the sheltered valleys, partly to mineral wealth and manufacturing industry.

In the south-east of the western half of the empire, a region occupying fully the half of Bavaria, and composed in large part of a bleak tableland with a poor soil and without mineral wealth (except once more salt), has as sparse a population as the northern plain. The height of this tableland is about 1000 feet lower than that of France (Munich, 1700 feet: comp. 93).

114*a*. The mountains of Germany are mainly on the frontier, and for the most part consist of comparatively short ranges, with breaks which have admitted of railways being pierced through them with economic advantage at no great distance from one another. Besides the **Vosges** (93), the Erzgebirge present a serious barrier to communication, not so much on account of the distance for which the railway connection is broken as on account of the fact that they lie between the most densely peopled parts of Saxony and Bohemia. The Bohemian Forest on the south-west of Bohemia has two railways across the range, in addition to the communications through the gap at its northern end between it and the Erzgebirge. The Sudetes on the south-west of Silesia are also a serious railway barrier, and several railways converge to the opening known as the Moravian Gate between the south-eastern extremity of these mountains and the Carpathians. The Harz Mountains in western Germany, entirely within the frontier, are still uncrossed by any railway for a distance of sixty miles. But the Alps, on the southern frontier of Bavaria, and in Switzerland and Austria, are the most serious of all the mountain hindrances to German commerce (121, 126).

114*b*. In the plains and valleys the natural and artificial **waterways** are of great value to the commerce of Germany. The Rhine, the Elbe, the Oder, and the Vistula are all navigable to the neighbourhood of the German frontier or beyond it; the Fulda and Werra, the two headwaters of the Weser, to about lat. 51°; the Danube from Ulm. For steamers the Danube is navigable from Ratisbon. The rivers of the northern plain are connected by numerous canals. The navigation of the Rhine is connected by canal with those of the Rhone and Seine basins (94). With the Danube it is connected by the celebrated Ludwig's Canal, which joins the head of navigation on the Main, the chief tributary of the Rhine on the right bank, to the main

stream of the Danube, by way of the Regnitz and Altmühl. But the great German waterway, the greatest in Europe, is the Rhine, especially since the improvements completed in 1899, by which it has been made possible for boats of 2000 tons burden to reach Mannheim (at the confluence of the Neckar), and those of 800 tons can reach Strassburg. Large numbers of sea-going vessels now ply to Cologne. Next in importance to the Rhine is the Elbe, which allows vessels of 800 tons to cross the German frontier into Bohemia (128). By means of a canal round Breslau, opened in September 1897, vessels of 400 tons are enabled to reach upper Silesia from Stettin or Berlin. The **eastern rivers** are largely used for the **floating of timber.**

114*c*. A **ship-canal**, suitable for small vessels, has long existed in the south of Schleswig-Holstein, but this has since 1895 been partly superseded by the Kaiser Wilhelm Canal, between the mouth of the Elbe and Kiel Bay, with a depth of 28 feet, which is to be increased by the end of 1915 to 36 feet. The only locks are one at either end, and that at the eastern end is seldom closed, while that at the western end is kept open for three or four hours in every tide. Its total length is 61 miles, and it effects a saving in distance of 237 miles, in time of three days, for sailing-vessels, and twenty-two hours for commercial steamers, from the mouth of the Elbe, and a saving of greater or less amount for all North Sea ports to the south of the Tyne.

115. Climate.—In respect of climate Germany is less favourably situated than France, not only through being further north, but also through being further east (6*a*), and on account of the high elevation of a large part of the south-west, that is, the region with the best climatic position both in latitude and longitude. The districts with the best climate are the valley of the middle Rhine (that is, the plain between the Vosges and the Black Forest), and the valleys of the three chief tributaries of the Rhine, the Neckar, Main, and Mosel (Moselle).

116. Agricultural Products.—This difference in climate results in a difference in the **crops**. In Germany, cultivation has latterly been rapidly extending and improving. The area under corn-crops, formerly less than in France, is now considerably greater, but the crops are less valuable than those of the latter

country. **Wheat** (including spelt) has in recent years occupied about $4\frac{1}{3}$ per cent. of the surface; **rye**, the chief bread-plant, nearly 11 per cent.; **oats** about 8 per cent. Among green-crops by far the most important in extent of ground occupied are potatoes, which cover about seven times as large a surface as in the United Kingdom. Though **vine**-cultivation (25) reaches in Germany the most northerly limit in the world (about $52\frac{1}{2}°$ N.), the extent of ground in vineyards (chiefly in the sheltered valleys of the south-west) is less than one-fifteenth of the area so occupied in France. The noted Taunus wines (hock, &c.) are the produce of the hill-slopes in the neighbourhood of Wiesbaden, the slopes that look down on the valleys of the Main and middle Rhine from the north. The only two crops in which German agriculture takes the first place on the mainland of Europe for quantity are **sugar-beet** and **hops** (26). Sheep yielding **wool** of the highest quality are reared in Silesia and the kingdom of Saxony. See also 29.

117. **Minerals.**—In mineral produce, on the other hand, Germany takes a very high place, ranking amongst European countries next after the United Kingdom in total value of production. Among the minerals, coal (59) and iron (60) are the first in importance. The chief **coal-basins** are that of the Ruhr, on the right bank of the Rhine, in the provinces of Rhineland and Westphalia, where Dortmund and Bochum are the chief coal-mining towns and Gelsenkirchen, on the western border of Westphalia, a few miles north-east of Essen and north-west of Bochum, the chief centre of coke production; that of the Saar (a right bank tributary of the Moselle) in Rhineland and Lorraine; that of Zwickau and Lugau, in the kingdom of Saxony, at the base of the Erzgebirge; that of upper Silesia, in the extreme south-east of the province, and extending also into the Austrian province of Galicia and into Poland, and that of lower Silesia, a smaller coalfield to the south-west of Breslau. **Lignite** is abundant in Prussian Saxony and the Thuringian States, where it has given rise to a large paraffin and mineral oil industry, and likewise furnishes fuel for the numerous sugar-refineries of the district.

117*a*. Since 1894 the German Customs Union has surpassed the British Isles in the production of **iron ores**. Within the empire these ores are found mainly in two districts. One of these

is in the north-west of Lorraine, immediately adjoining the district producing the Luxemburg ores. The ores of this district are very poor in iron, but they have acquired much greater value since 1879, when a process was invented (in England) by means of which such ores could be used in manufacturing steel on a large scale. The other district lies in hilly country to the south-east of the Ruhr coalfield, where the three Prussian provinces of Westphalia, Rhineland, and Hesse-Nassau meet, and mines occur in all these provinces. The ores here are of better quality and richer, but are more costly to work. Other ores are found on the banks of the Oder near Breslau, but they are not of great value. The facilities for inland navigation in the Rhine basin are of particular importance for the carriage of such heavy commodities as coal and iron ores.

117*b*. **Zinc** and **lead** are obtained in Silesia and the Rhine Province, the latter also elsewhere. In Silesia, the centre of zinc (calamine) production is Königshütte, in the south-east of the province; in the Rhine Province, near Aachen (Aix), close to the zinc-producing district of Belgium. **Copper** is produced chiefly in the Harz, at Mansfeld, from an ore containing also silver, and in the Erzgebirge (Saxony), **silver** in Saxony (Freiberg) and at Mansfeld; **salt** in the Prussian province of Saxony, at Schönebeck and Stassfurt, the latter of which produces, besides rock-salt, potash salts, used as manure and for other purposes.

117*c*. **Manufactures.**—All branches of manufacturing industry are vigorously carried on. The chief localities are mentioned in paragraphs 119–119*e*.

118. **Foreign Commerce.**—In recent years grain and flour, raw wool, raw cotton, timber, cotton and woollen yarns, coffee, raw hides, and raw silk have made up about a third of the value of the imports; the others including horses and other animals, tobacco, coal, and petroleum. Sugar (raw and refined), woollen and cotton manufactures, coal, iron (wrought and unwrought), machinery, and chemicals have made up more than a third of the value of the exports.

118*a*. The United States, Russia, the United Kingdom, and Austria-Hungary stand first in supplying German imports, while the United Kingdom, Austria-Hungary, the United

States, and Russia are first among the countries receiving German exports. (Compare paragraph 82*c*.)

118*b*. Since the German Empire was constituted in 1871, down to about 1890, its foreign commerce has presented some noteworthy features. There was a pretty steady and rapid increase in the value of the raw silk and cocoons imported and the silk manufactures exported, and, till the end of last century, a still more rapid rise in the export of sugar. The rise of the silk industry, betokened by the first of these facts, has chiefly been at the expense of France, and has been largely brought about by the substitution of machinery for domestic production, and the manufacture of a cheaper kind of silks than those made on French looms. The growth of the sugar export has been a consequence of the granting of bounties by the government on the export of this commodity. Under an international agreement the granting of such bounties ceased on September 1, 1903. The import tables have likewise shown a pretty steady rise in the amount of coal and raw cotton imported, and a rapid rise in that of petroleum.

118*c*. Among the causes that have helped to promote German trade generally in recent years two may be mentioned. One is the advanced state of commercial and technical education, which, besides advancing German industry in other ways, enables German merchants to employ large numbers of well-qualified travellers to procure trade in foreign countries. The other is the construction of great Alpine tunnels. The most important of these, with reference to the commerce of Germany, is the St. Gothard (121), leading as it does directly from the most populous parts in the west of the empire, through some of the most populous parts of Switzerland to the most populous parts of northern Italy. The Arlberg tunnel in the west of the Tirol (126) is also of importance for German commerce, but its effect from a German point of view is not wholly favourable.

The recent territorial acquisitions of Germany in Africa and the Pacific have not yet had time to have much effect on German commerce.

119. Chief Industrial and Commercial Towns and Districts.

Capital.—Berlin, on the Spree, the capital also of the

Greater Berlin 3,700,000

kingdom of Prussia, like London and Paris a town with a very varied industry. Though it has acquired its large population chiefly through being the capital of the kingdom of Prussia and the German Empire, it is not without its advantages of situation. It is fairly centrally situated in the north German plain. Even before the time of railways it was connected by waterways with Hamburg and Stettin. The first canal connecting the Spree with the Oder was completed in 1668. Further, the obstruction to communication from north to south presented by the rivers flowing east and west between the Elbe and the Oder caused a great deal of traffic to cross the Spree at Berlin, where an island in the river facilitated the making of bridges. Railways and other modern improvements (**114***b*) have confirmed and extended these old advantages.

119*a*. **Towns engaged in textile industries.**—Numerous small towns as well as larger ones carry on such industries on a considerable scale, but only the larger towns are here singled out. Water-power is employed in many small places among the mountains, as in the valleys of the Vosges, and those of the Swabian Jura east of the Neckar. The district embracing the Ruhr coal-basin is as thickly studded with manufacturing towns as Lancashire or the West Riding of Yorkshire. *Cotton.*—Mülhausen (French, *Mulhouse*) and other towns in Alsace, which is the chief cotton district in the empire. *Wool.*—Aachen (French, *Aix-la-Chapelle*) and other smaller towns in the west of the Prussian Rhine Province, on or near a small coalfield. *Silk.*—Krefeld, in the Rhine Province west of the Rhine, now the chief seat of silk-manufactures after Lyons. *Linen.*—Bautzen and other places in the south-east of the kingdom of Saxony, and also in the north-east of the Prussian province of Westphalia. *Jute.*—Brunswick (German, *Braunschweig*). *Lace.*—In all the towns and villages along the base of the Erzgebirge (Saxony). Other important manufacturing towns can hardly be identified with any one branch of this class of industries. Among these are the adjoining towns of Elberfeld and Barmen (cottons, including trimmings, woollens,

Mülhausen	95,000	Brunswick	145,000
Aachen-Bürtscheid	155,000	Elberfeld-Barmen	340,000
Krefeld	130,000		

silks, especially ribbons), in the Rhine Province, close to the Ruhr coal-basin; Chemnitz, Zwickau, &c., in the kingdom of Saxony on or near the coalfields, at Breslau, Görlitz, &c., in Silesia (all producing cottons and woollens, some also linens); Stuttgart, in Würtemberg (cottons, hosiery).

119*b*. **Iron industries** are largely carried on at Essen, in the Ruhr basin, where the vast works of Krupp for the manufacture of cast-steel, cannons, rails, &c., are situated; at Solingen and Remscheid, the chief seats of German cutlery, in the Rhine Province to the south of the Ruhr basin. Iron and steel industries are also growing up rapidly on the ore field of Lorraine. **Machinery** is manufactured at Berlin, Chemnitz, Breslau, &c. The following industries are also carried on on a large scale:—**Sugar-refining** at Magdeburg and Halle. **Chemical industries** at Stassfurt, Erfurt, Elberfeld, &c. **Leather industries** in Berlin. **Toy-making** in Nuremberg (German, *Nürnberg*). **Clock-making** at many places in the Black Forest. **Porcelain manufacture** at Berlin, Meissen (on the Elbe below Dresden, with the royal manufactory of "Dresden" china), Munich. **Shipbuilding**, now very important, chiefly at Stettin, Hamburg, and Bremen.

119*c*. **Inland centres of trade.**—Breslau, in Silesia, with a large Russian trade; Munich (German, *München*), capital of Bavaria, now an important railway centre; Augsburg, Nuremberg, also in Bavaria; Dresden, on the Elbe, capital of Saxony; Leipzig, also in the kingdom of Saxony, chief centre of the German book-trade, noted also for its great fairs; Cologne (German, *Köln*), on the Rhine, in Prussia; Dortmund, in the Ruhr basin, Westphalia, the centre of the district that produces nearly half the coal annually raised in Germany; Mainz

Chemnitz	285,000	Bremen	245,000
Zwickau	75,000	Munich	595,000
Breslau	510,000	Nuremberg	335,000
Görlitz	85,000	Augsburg	125,000
Stuttgart	285,000	Dresden	545,000
Essen	295,000	Leipzig	590,000
Remscheid	70,000	Cologne	515,000
Magdeburg	280,000	Dortmund	215,000
Halle	180,000	Mainz	110,000
Erfurt	110,000		

(French, *Mayence*), in Hesse-Darmstadt, at the confluence of the Rhine and Main, with a large wine-trade; Mannheim, in Baden, at the confluence of the Rhine and Neckar, the centre of the grain-trade of southern Germany, a trade largely carried on by river; Frankfurt-on-the-Main, a river-port of growing importance, formerly the chief, and still an important, centre of banking in Germany; Strassburg, in Alsace, on the Ill, but quite close to the Rhine; Posen, in the province of the same name.

119*d*. Magdeburg on the middle Elbe, and Breslau on the upper Oder, may both be compared with Berlin in respect of their situation. They are both, like Berlin, crossing-places, and at both the bridging of the river has been facilitated by islands dividing the stream. There is no ordinary road-bridge across the Elbe for 70 miles above Magdeburg or 70 miles below it. The fact that Magdeburg is situated at a sharp bend of the river also adds to its trade. It causes goods frequently to be shifted from land to river, or river to land at that point. The great fertility of the soil on the left bank of the Elbe round Magdeburg, now the chief sugar-beet district of Prussia, is another great advantage. The old bridges of Breslau have made it a great centre of trade between eastern and central Europe for hundreds of years.

119*e*. Nuremberg has been famous for manufactures since the thirteenth century. Its industries were then encouraged by special privileges, but at that time its situation also gave it special advantages in the way of trade. Valuable commodities were then conveyed up the Danube in considerable quantity, and when these were afterwards sent down the Rhine valley, they were landed opposite Ratisbon, and the direct route thence to Frankfurt-on-the-Main passed through Nuremberg.

120. **Seaports.**—For the despatch and reception of its transmarine exports and imports Germany is largely dependent on foreign ports—those of Belgium, Holland and France, Italy and Austria. None of its own seaports is so conveniently situated for the commerce of the chief mining and manufacturing region of the west as Antwerp or Rotterdam. There are very few

Mannheim	195,000	Strassburg	180,000
Frankfurt-on-Main . .	415,000	Posen	155,000

German seaports with a sufficient depth of water for ships of the largest size. The only two with a depth of more than 25 feet are those of Bremerhaven, the outport of Bremen, on the Weser, and Cuxhaven, the outport of Hamburg. At Hamburg itself at mean tide the depth is 23 feet, and the rise of the tide adds from 3 to 5 feet. Alongside the quays at the adjoining Prussian port of Altona the depth is only 22 feet. At Cuxhaven the depth at low water is 26½ feet. Bremen proper was long a seaport without ships, but the Weser has now been deepened to rather more than 26 feet at low water, while at Bremerhaven the depth is 35 feet. The harbour of Swinemünde, the outport of Stettin, the deepest harbour on the Baltic, is 24 feet deep.

120*a*. In order of importance as regards the amount of shipping the chief seaports are Hamburg (including Altona and Cuxhaven), Bremen (including Bremerhaven), Stettin (including Swinemünde), Danzig, Kiel, Lübeck. Hamburg and Bremen are the only two German seaports with a large American and other trans-oceanic commerce. Hamburg is the seat of an important steam-packet company, which takes its name from the town. Like Antwerp and Rotterdam, it has the advantage of inland waterways with a large traffic. By means of the Elbe, Havel, and Spree and connecting canals it communicates with Berlin, all the heavy traffic between these two cities following that route; by means of the Elbe and Moldau it has steam communication even with Prague in Bohemia. The fact that the peninsula of Jutland formerly lengthened the voyage from the Baltic to the English Channel caused much of the traffic of eastern and south-eastern Germany with western ports to converge upon Hamburg, and the North Sea and Baltic Canal has not yet done much to divert this traffic. Besides the Hamburg-American steam-packet company referred to above, it is the seat of several other important lines of steamers. Bremen is the seat of the North German Lloyd Shipping Company, and shares with Hamburg a large emigrant traffic.

Hamburg-Altona	1,100,000	Danzig	170,000
Bremen	245,000	Kiel	210,000
Stettin	235,000	Lübeck	100,000

120*b*. The principal Baltic ports in order from west to east are Kiel, Lübeck, with Travemünde, on the inlet that receives the river Trave, Rostock on the Warnow, Stralsund, opposite the island of Rügen, Stettin, the seat of the Baltic Lloyd Shipping Company, and the nearest seaport to Berlin, Königsberg on the Pregel (Frisches Haff), and Memel on the Kurisches Haff. Lübeck is so situated as to bring a large part of western Germany, and even of Bohemia, into connection with the Baltic. Much of this trade, however, has been taken away by the opening of the Kaiser-Wilhelm Canal. On the other hand, the trade of the port was greatly benefited by the opening in 1900 of the Elbe-Trave Canal, 8 feet deep, connecting the Elbe with this port. Kiel is not only a busy seaport, but also an important station of the German navy, and Wilhelmshaven on the Jahde, west of the mouth of the Weser, is solely used for this purpose. All the Baltic ports are closed by ice in winter, the closing of the port lasting longer the further east it lies (6*a*). The navigable channels of the Elbe and the Weser are kept free by ice-breakers.

SWITZERLAND.

121. **Area.**—Less than one-fifth of the size of Great Britain.

Surface and Communications.—Five-sevenths of the surface is divided between the Alps and the Jura, and the great bulk of the population inhabit a tableland upwards of 1000 feet in height between these mountains. The nature of the surface presents great obstacles to internal communication between the populous tableland and various parts of the most sparsely peopled region, and also to communication with the frontier countries on the east and south. Not till the present century was there any carriage-road across the Alps, but now the Swiss Alps possess some of the finest mountain roads in the world. The first constructed was that made by Napoleon across the Simplon for the passage of his "cannon" from the valley of the upper Rhone to the banks of Lake Maggiore in Italy. This was completed in 1805, and by the year 1830 the road across the St. Gothard, between the valleys of the Reuss and Ticino, and those across the Bernardino, Splügen, Maloja, and Julier passes, had been

added. Since 1882 a railway tunnel nearly 10 miles long has replaced the St. Gothard road connecting Milan in Italy with western Germany. In 1906 a still longer tunnel, 12¼ miles, was opened under the Simplon Pass, establishing the shortest connection between Milan and Paris (519 miles), and in 1913 this was supplemented by the Lötschberg tunnel through the Bernese Oberland, leading to Bern, and destined to make the shortest connection with northern France. A narrow-gauge railway under the Albula pass has connected Coire with the Engadine since 1903.

122. **Climate and Products.**—The heavy rainfall promoted by the mountainous character of the country nourishes excellent pastures. Cattle-rearing is carried on in summer up to the height of 9000 feet, and this is the only branch of agriculture that yields considerable export products (living animals, cheese, condensed milk). For the prosecution of its **manufacturing industries** and handicrafts Switzerland, though possessing little coal or iron, has certain advantages of its own, the principal being the **abundance of water-power** afforded by the torrents of the Alps, and the abundance of cheap skilled labour, to keep up the quality of which the government has done so much in the way of providing for efficient technical education. Apart from watches the great manufacturing region of Switzerland is in the north, which, though lacking in coal, has the great advantage of lying on both the great through routes connecting central Europe with the Mediterranean, by Geneva and the St. Gothard tunnel respectively.

123. **Foreign Commerce.**—Silks, cottons, machine embroidery, trimmings, watches, machinery and locomotives, are the manufactured articles for which Switzerland is most noted. These articles make up more than 60 per cent. of the value of the exports. Cheese and condensed milk are also large exports, and an export trade in breeding stock and store cattle is balanced by a large import of fat cattle from Italy and Austria. The four surrounding countries, Germany, France, Italy, and Austria, take the lead in supplying the imports (chiefly articles of food and enjoyment and the raw materials of manufacture), but the United Kingdom stands second and the United States third among the countries that receive the exports, Germany being

first and France fourth. Cotton manufactures of one kind or another are exported even to the United Kingdom to the value of more than one million sterling annually. Swiss watches and other manufactured articles are sent even to India, China and Australia, the United States and South America. The **language** of commerce is different in different parts. Seven-tenths of the people speak German, two-tenths French, and one-twentieth (chiefly in Ticino) Italian. German is the prevailing language in *all* the towns mentioned in the next paragraph except Geneva, Lausanne, Neuchâtel, Locle, and La Chaux de Fonds, in all of which French predominates.

124. **Chief Towns —Capital.**—Bern, on the Aar.

With textile industries.—Zürich, including suburbs (silks and cottons), Basel (French, *Bâle*), on the Rhine in the north west (manufactures chiefly silk ribbons), St. Gall and Appenzell in the north-east (embroideries). Basel lies at the angle where the Rhine valley communicates with the Saône-Rhone valley through the gap between the Vosges and the Jura—the so-called Burgundy Gate. **Watch-making towns.**—Locle and La Chaux de Fonds (Neuchâtel) in the Jura. **Centre of the watch-trade.**—Geneva (including suburbs), at the outlet of the lake of the same name in the south-west of the country. Zürich, Bern, Basel, Geneva, Lausanne, and Neuchâtel are important educational centres.

AUSTRIA-HUNGARY.

125. **Area and Great Divisions.**—The Austro-Hungarian empire, exclusive of Bosnia, has an area almost exactly equal to twice that of the British Isles. It is divided into two nearly equal sections, the **Cis-Leithan** portion, comprising most of the outer provinces, and the **Trans-Leithan**, or Hungarian portion, comprising the inner provinces along with Transylvania and a strip of coast-line extending from Fiume to the mainland of Dalmatia. The **most populous area** of the empire is along the northern frontier, and more particularly in the north-west, where the density is from 300 to 400 to the square mile.

Bern	65,000	Basel	110,000
Zürich	190,000	Geneva	105,000

126. Surface and Communications.—The **Alps** fill the south-western portion of the empire. The chief Austrian **Alpine tunnels** are the Brenner, Semmering, and Arlberg. The railway through the Brenner tunnel, connecting the valleys of the Inn and Adige, serves as the direct route between the populous regions of Bohemia and northern Italy. That by way of Udine, in Venetia, and Klagenfurt, in Carinthia, through the Semmering tunnels, on the frontier of Lower Austria and Styria, is as yet the shortest route between northern Italy and Vienna. The Arlberg tunnel, in the west of the Tirol, connects the basins of the Inn and Rhine, and establishes the shortest railway connection between Vienna and northern Switzerland, as well as the south-west of Germany. Hitherto no railway has been constructed across the Stelvio Pass at the head of the valley of the Adda, the route followed by the shortest carriage-road between Vienna and Milan. Down to the present day the **Carpathian Mountains**, separating Hungary and Transylvania from Galicia, Russia, and Roumania, have much longer intervals uncrossed by rail than the Alps, but this is not because they are more difficult to cross, but because the more populous regions on the opposite sides yield for the most part similar products, and the wide intervening belt with a sparse population furnishes little but **timber** in the way of mercantile commodities.

126*a*. The **rivers** form important waterways in both sections of the empire. The Danube is navigable for steamers throughout its length within the frontier of the empire (**114*b***). Formerly the navigation was greatly impeded at the rapids known as the Iron Gate, just above the Roumanian frontier, as well as at intervals over a distance of 60 miles above the Iron Gate proper. Works for the regulation of this part of the river, involving the establishment of a permanent channel of about 10 feet in depth, were completed by the Austrian government in September 1896.

Of the tributaries of the Danube, the Theiss, whose windings have been greatly reduced by canalisation, is navigable for steamers to Tokay; the Drave to the confluence of the Mur; the Save to Sissek, at the confluence of the Kulpa. With regard to the Elbe and Moldau navigation see **114*b*, 120*a*, 128, 130*a***.

127. Climate and Agricultural Products.—The inner low-

lands are more especially subject to those extremes of temperature which become more characteristic as we go eastwards (6*a*). In both sections of the empire the area under corn-crops is very much greater than in the British Isles, but in the **Cis-Leithan**, or Austrian, section the chief **corn-crops** are **rye** and **oats**, in the **Trans-Leithan**, or Hungarian, **wheat** and **maize**. The latter section, with an area only one-thirtieth larger than that of the United Kingdom, has had in recent years about four times as great an extent of land under wheat. Among other agricultural products of both sections of the empire are sugar-beet, wine, hops, tobacco, flax, and hemp. **Sugar-beet** is grown chiefly in the Austrian section, most abundantly on the cretaceous rocks of northern Bohemia, and the same province is noted for its **hops**. **Wine** (25) is grown chiefly on the slopes of the *Alps* of the southern *Alpine provinces*, and on the Hungarian hills west of the Danube; but the most noted vintages of Hungary are the produce of other regions. The famed Tokay is produced on a spur of the Carpathians north of the town of Tokay; and Karlowitz is the produce of hills in the south between the Danube and Save, near Peterwardein. In the fertile district of the **Banat**, in the south-east of Hungary proper, even a little **rice** is grown along with abundance of wheat, maize, and fruit. The *rearing of the silkworm* has long been pursued in southern Tirol (valley of the Adige), and is rapidly extending in the Mediterranean provinces and southern Hungary.

A table in the Appendix shows the importance of the forests of the empire.

128. **Minerals.**—Coal and iron are both plentiful, but the chief deposits of these two minerals are widely separate from one another, and those of iron ore are in the very heart of the Alps. True **coal** (59) is mostly found in the provinces of Bohemia, Moravia, and Silesia. In Bohemia the principal fields lie to the north-west of Prague and in the neighbourhood of Pilsen, in Moravia near the north of the province. There is also a large deposit of **lignite** further to the north-west, at the base of the *Erzgebirge in Bohemia*. A *large proportion of the* lignite produced and a smaller proportion of the coal are exported to Germany by the Elbe, the lignite being shipped at

Aussig, the point up to which the river has been made navigable for vessels of 800 tons (114*b*). In the Alpine provinces the amount of coal is insignificant, but lignite abounds. In northern Styria, at **Eisenerz**, a little to the south-east of the northerly bend of the Enns, is the chief Austrian deposit of **iron ore.** More valuable kinds of iron ore are produced in the north-east of the neighbouring province of **Carinthia**, which ranks next to Styria in the production of this mineral. The smelting of iron and the making of steel (60) are carried on most largely in the same two provinces, and next to these in the northern coal-yielding provinces, where much foreign ore is smelted. **Salt** is abundant in the north-western Alpine provinces (in the Salzkammergut, in Upper Austria), and in the west of Galicia (Wieliczka, near Cracow). **Gold** and **silver** are both largely produced (62), silver most abundantly in the heart of Bohemia. Both gold and silver are also mined at Schemnitz, in northern Hungary. Idria, in the west of Carniola, yields **quicksilver.**

129. **Foreign Commerce.**—In recent years raw wool, cotton, coal and coke, tobacco, leather and leather wares, silk and coffee, have made up about 30 per cent. of the special imports, and sugar and molasses, timber, eggs, lignite and coal, grain, animals, and glass wares more than 30 per cent. of the special exports. Here, as in Germany (118*b*), the export of sugar was till September 1903 stimulated by bounties. Germany supplies more than a third of the value of the imports, and receives nearly half that of the exports; the United Kingdom, the United States, and India coming next in supplying the imports, the United Kingdom, Italy, and Turkey among the countries receiving the exports.

129*a*. In no country in Europe are so many languages spoken as in Austria-Hungary, but the prevailing **languages of commerce** are German and Italian. German is the prevailing language in all the Alpine provinces north of about 46½°, in the neighbourhood of the mountains on the borders of Bohemia, in the north of Moravia and the west of Silesia, and is the language of the educated in many of the chief towns elsewhere, as in Budapest, Brünn, Olmütz, Iglau. Italian is the dominant language in all the seaports, as well as in the southern half of

that part of the basin of the Adige (Etsch) that belongs to Austria. In Hungary and part of Transylvania the Magyar language is spoken; in the remainder of Transylvania, partly German and partly a dialect of Roumanian. Elsewhere various Slavonic languages prevail. The internal trade in the east of the empire is mainly in the hands of Jews, most of whom speak German.

130. **Chief Commercial and Industrial Towns and Districts.** Manufactures of various kinds are carried on in the three chief towns, Vienna, in Lower Austria, on the Danube, capital of the whole empire, Budapest, capital of the Trans-Leithan section, and Prague, capital of the old kingdom of Bohemia. Silks, machinery, and wooden-wares may be specially mentioned among the Viennese productions. Elsewhere **textile manufactures** are principally carried on in a large number of towns near the northern frontier of Bohemia and Moravia, and in Austrian Silesia (Reichenberg, Trautenau, Troppau, &c.), in the larger towns of Moravia (Brünn, Iglau), in several towns in Lower Austria south and south-east of Vienna, and in the Vorarlberg (west of Tirol). **Bohemian glass** is manufactured chiefly in the Bohemian forest (where potash is obtained by burning wood—68), common glass in the north of Bohemia; **porcelain** in the neighbourhood of Karlsbad, northern Bohemia, where there are large deposits of the fine white clay from which it is made (68). Vienna and Pilsen (Bohemia) are noted for their **beer.** Steyr, in Upper Austria, on the Enns, is the chief place of manufacture of **articles made of iron or steel**, and is above all noted for its large manufacture of scythes and sickles.

130*a*. Vienna, like Berlin (119), owes much of its importance to the fact of its being a capital, and so also do Budapest and Prague in a minor degree, but all three have other geographical advantages. All three are on important navigable rivers. Vienna, moreover, is situated where all the western trade of the Hungarian plains and lowlands converges on the narrower part of the Danubian valley. Budapest has a central situation in a plain, and, until recently, was at the lowest permanent

Vienna	2,030,000	Brünn	125,000
Budapest	880,000	Pilsen	80,000
Prague	225,000		

bridge over the Danube (141). Prague is nearly centrally situated in Bohemia, at the point where the west to east highway through Bohemia, entering from the west by the valley of the Eger, crosses the Moldau, and though situated on the river just named, may be described as at the head of the steamboat navigation of the Elbe. See 120*a*, 128.

Other inland centres of trade.—Lemberg in Galicia; Czernowitz in Bukovina; Graz in Styria; Szegedin, Debreczin, Temesvar in Hungary; Klausenburg in Transylvania.

131. **Seaports.**—Trieste (including suburbs), the principal seaport of the Cis-Leithan section of the empire, seat of the shipping company known as the Austrian Lloyd; Fiume, the chief Trans-Leithan seaport, seat of the Adria steamship line, chief place of shipment of Hungarian products, especially wheat and flour. Pola is a naval station. Zara, Spalato, and Cattaro on the Dalmatian coast have excellent harbours, but lack communications with the interior, and are consequently unimportant as seaports.

RUSSIA.

132. **Area** (including Finland), more than twenty-three times the size of Great Britain.

133. **Surface and Communications.**—The surface of Russia, though mainly made up of one vast plain, and thus presenting scarcely any of the obstacles to communication such as we have had chiefly to consider in the case of the countries already treated, offers difficulties of another kind; and these natural difficulties, together with other causes, have prevented Russia from acquiring to this day anything like adequate facilities for transport, and especially by land (see railway table in the appendix). The marshy character of a large part of the surface and the want of road-making material (both stone and wood being entirely absent throughout large areas in the south) have stood in the way of the construction of roads. For half the year

Lemberg	205,000	Debreczin	100,000
Czernowitz	85,000	Temesvar	75,000
Graz	150,000	Trieste	230,000
Szegedin	120,000		

the substitute for roads is, as usual in such regions, tracks formed by the repeated passage of wheeled vehicles, and apt to be rendered scarcely passable by bad weather. In winter a better substitute is found in the use of sledges.

133*a*. The deficiency of roads is to some extent made up for by the abundance of the **natural waterways** and the ease with which they can be and have been connected by canals. The great majority of the rivers are navigable nearly to their source, many of them for a great distance by steamers. Nevertheless this means of communication is attended by **various drawbacks**, which will best be illustrated by a few particulars. No Russian river-port is on an average free from **ice** for more than ten months in the year. Warsaw, the head of steam navigation on the Vistula, has on an average 305 days in the year ice-free; Kherson, at the mouth of the Dnieper, in the latitude of La Rochelle in France, only 280 days; Astrakhan, in about the same latitude, only 264 days; and St. Petersburg, 218 days. On the Dnieper, the principal waterway to the Black Sea, rocky **rapids** impede the navigation for a distance of twenty-three miles on that part of the river which flows from north to south (between Alexandrovsk and Ekaterinoslaf) in the great bend which the stream makes to the east. Rapids also impede the navigation of the Dniester and Bug, and, above St. Petersburg, the much more important navigation of the Neva.

133*b*. There are other drawbacks still. The Volga, which with its tributaries affords more than 7000 miles of inland navigation, does not furnish any direct connection with the ocean. Goods intended for the sea are landed at Tsaritsin, at the point where the river turns south-eastwards to the Caspian, and are transferred by rail to the Don, a river that can be navigated only by steamers of very shallow draught. Of the projects for new canals now being urged forward the most important, perhaps, is that for a canal between the Don and the Volga, to put an end to the existing interruption between the navigation of the Volga and the outside world.

Ekaterinoslaf . . .	200,000	Tsaritsin	80,000

133*c*. The extent of the water communication in Russia helped to delay the laying of **railways**, but railways now diverge from Moscow to all the chief ports, to various points on the western frontier where connections are made with foreign lines, to Vladikavkaz, at the end of the chief pass-road across the central Caucasus, and to Orenburg, near the European frontier south of the Urals. There is likewise a line of railway following the original trade-route across the Ural Mountains, from Perm in European Russia to Tyumen in Siberia, and this railway is now connected with another which crosses the Urals further south and is continued eastwards as the Great Siberian Railway (182*a*). This last line in European Russia passes Zlato-ust, the centre of iron-mining in the Urals.

134. **Climate and Agriculture.**—Russia lies in that part of Europe where the extremes of temperature are greatest and the rainfall on the whole least (6*a*, 6*b*). About half the entire area, in the north-east, east, and south-east, has a total rainfall for the year of less than 20 inches (76). Liability to drought makes the amount of the harvest extremely variable.

134*a*. The nature of the climate puts a limit to cultivation both in the north and the south-east, and the whole of the arable land of **Russia proper**, exclusive of Poland and Finland, makes up only about 26 per cent. of the surface. A northern zone with nothing but reindeer pastures is followed to the south by a second zone chiefly occupied by vast forests (see 52, and the table in the appendix); that again by a third, in which forests give place more and more to agricultural land, and finally disappear altogether. The region of **black-earth**, a soil of unsurpassed fertility which is spread over southern Russia in larger or smaller patches from the frontier on the south-west to the hills west of the Volga, is that on which by far the greatest quantity of the corn-crops of Russia proper are grown. Altogether this soil is estimated to cover one-fifth of the total area of Russia proper, but a large part of this area in the east extends into the region of those **steppes** which are so arid in climate as to be habitable only by nomadic tribes (Tatars and others) Poland, which has a separate administration from Russia proper, lies mainly outside of the black-earth zone, but

Orenburg 95,000

has long had a much better system of agriculture than that of Russia. Of the grain-crops of Russia the most important is rye, which is produced to an amount about four times as great as wheat (17), and the second of the corn-crops in importance is oats. Flax (27) and hemp (28) are important crops in the Baltic provinces and Poland, sugar-beet (26) in the south-west.

135. **Minerals.**—Though agriculture and forestry form the basis of by far the greater part of the export trade of Russia, *the mineral wealth of the country is enormous, and its mining* and manufacturing industries are rapidly extending. Coal and iron are both abundant. **Coal** (59) is found principally in four localities—(1) west of the Ural Mountains in a district to which a branch line proceeds northwards from the Perm-Tyumen railway; (2) in a district to the south and south-west of Moscow; (3) in the south-west of Poland; and (4) in the valley of the Donets, a right-bank tributary of the Don. The last-mentioned field is the largest of all, but as it lies in a sparsely peopled district, it has only recently begun to be opened up. Its development is now, however, going on rapidly.[1] **Iron ores** are obtained not only in the district of the Urals already referred to (133), but also in several districts to the south of Moscow, in the south-west of Poland, and at Krivoi Rog, about a hundred miles north by east of Kherson. **Gold**, platinum, and copper are found in the neighbourhood of Ekaterinburg, east of the Urals; salt in the area below sea-level north of the Caspian, and in the Crimea; quicksilver about 100 miles N.N.W. of Taganrog.

136. **Foreign Commerce.**—In the special commerce of Russia in Europe, exclusive of Finland, engines and machinery, raw cotton, tea, metal wares, coal and coke, raw wool, and fish have made up in recent years more than 40 per cent. in value of the imports. For many years corn of all kinds has usually made up at least half the value of the exports, and corn, together with flax and linseed, wood, hemp, and raw wool, have constituted about three-fourths of the total value. Germany and the United Kingdom take together above 50 per cent. of

[1] The yield of this field in 1885 was about 750,000 tons; in 1901, above 11,000,000 tons; in 1909, 17,000,000 tons.

the exports, and furnish nearly the same proportion of the imports.[1]

137. **Chief Industrial and Commercial Towns.**—St. Petersburg, the capital; Moscow, the chief railway centre; Warsaw, capital of Poland. In all these places varied manufactures are carried on. Lodz, *in western Poland*, north-east of the Polish coalfield, with rapidly rising cotton and woollen manufactures, largely carried on by Germans; Kief, on the Dnieper, centre of Russian sugar-refining; Kharkof, one of the chief towns in the heart of the black-earth region; Saratof, on the Volga, with tobacco manufactures; Nizhnii-Novgorod, at the confluence of the Oka and Volga, with great annual fairs, at which the products of Asia and Europe are exchanged.

138. **Seaports.**—(*a.*) On the Baltic: St. Petersburg, accessible to large ships only since 1885; Kronstadt, the former outport of St. Petersburg for large vessels; Reval, a growing cotton-port; Riga, on the Düna near its mouth; Dvinsk, or Dünamünde, the port for large shipping, at the mouth of the same river; Libau. (*b.*) On the Black Sea: Odessa, the chief grain-port of Russia, seat of the Russian Steam Navigation Company; Nicolaief, on the Bug, Kherson, on the Dnieper, both within the Ochakof Bar; Akerman, Sebastopol, Kerch. The deepening of the Ochakof Bar to 22 feet has caused the diversion of some of the trade of Odessa to Nicolaief and Kherson. (*c.*) On the Sea of Azof: Taganrog, near the head of the sea; Azof and Rostof, on the Don near its mouth. (*d.*)

St. Petersburg	2,000,000	Reval	75,000
Moscow	1,500,000	Riga	330,000
Warsaw	870,000	Libau	65,000
Lodz	410,000	Odessa	500,000
Kief	500,000	Nicolaief	95,000
Kharkof	235,000	Kherson	70,000
Saratof	200,000	Sebastopol	70,000
Nizhnii-Novgorod	110,000	Taganrog	55,000
Kronstadt	65,000	Rostof	120,000

[1] Since 1885 there has been a rapid rise in the quantity of raw cotton imported, and since 1889 a decline in the import of cotton yarn. Since 1891 Russia has been one of the most highly protected countries of Europe in respect of its fiscal policy.

On the White Sea: Archangel. (*e.*) On the Caspian Sea: Astrakhan.

139. **Finland** is a part of the Russian Empire which has a separate (parliamentary) government. Its inhabitants are mainly confined to a strip on the south, and even there the density of population is small. The products are similar to those of the neighbouring parts of Russia. The capital and chief port is Helsingfors. Hangö, on the Gulf of Finland, has a rapidly growing export of butter. The principal ports on the Gulf of Bothnia are Åbo, Björneborg, and Vasa. The language spoken at the ports is Swedish.

ROUMANIA.

140. **Area** equal to five-ninths of that of Great Britain; population rather sparse.

This kingdom is made up of two portions which, though very far from equal in area, must be treated separately; a section on the left of the Danube formed of the old principalities of **Moldavia** and **Walachia**, and the **Dobruja**, on the right bank of the Danube. The former section may be described as a continuation of the Galician plateau in the northern or Moldavian portion, and of the Russian plain in the southern or Walachian portion. With regard to communications, the effect of the barrier presented by the Carpathians has already been referred to (126). On the lower Danube great improvements have been effected by a European commission appointed in terms of the Treaty of Paris in 1856. The Sulina mouth of the river has been straightened and deepened to a minimum of 18 feet in the main channel as high as Braila. Vessels of 7000 tons burden can now ascend to this port. Much dredging is required to maintain this depth. As to the Danube navigation higher up see 126*a*. The freedom of navigation for all sea-going vessels, of whatever nationality, is upheld by international treaty. The principal Danubian ports in Roumania are **Galats**, situated at the point where the Danube on receiving the Sereth turns eastwards, and Braila (Ibraila), at the next bend of the

Astrakhan	150,000	Galats	70,000
Helsingfors . . .	150,000	Braila	65,000

river higher up. Besides Bukarest, the capital, the chief inland towns are Yassy, the capital of Moldavia, Ployeshti, and Kraiova.

141. The **Dobruja** is composed to the extent of about two-thirds of its area of uninhabitable and unhealthy marshes, mainly belonging to the delta of the Danube. **Wool** is a rising export. A **railway** from Bukarest crosses the Danube at Chernavoda and runs thence eastwards to Kustenji, or Constantsa, its chief port.

142. **Foreign Commerce.**—Among the exports wheat, maize, and other grains rank first, but there is a large and growing export of oil-seeds and petroleum.[1]

SWEDEN AND NORWAY.

143. The **area** of Sweden is nearly equal to twice that of Great Britain; that of Norway somewhat greater than that of the British Isles (72). The population in both is scanty (see table in the appendix).

144. **Surface and Communications.**—These two countries, which are now entirely independent, though they were under one king from 1814 to 1905, fall to be treated of together because they both occupy the Scandinavian peninsula, and hence have certain great physical features in common.

The greater part of this peninsula is made up of a high tableland furrowed by deep and narrow river valleys. The surface of this tableland rises from about 1000 feet in height in the north to upwards of 3000 feet in the south, and as increasing height thus takes away the advantage of a more favourable latitude, it presents everywhere a desolate aspect, almost the only vegetation being heaths, mosses, and lichens. The lowlands of the peninsula are chiefly in the east and south, so that Norway has by far the largest proportion of tableland; its cultivable lowlands, indeed, are confined to a few valleys in the west, with a rather larger area round Christiania Fjord. Hence the total area under crops and grass in Norway, not-

Yassy	75,000	Bukarest	340,000

[1] The production of petroleum in Roumania increased from 21,000,000 gallons in 1896 to 82,000,000 gallons in 1901; about 500,000,000 gallons in 1912.

withstanding that it has a more favourable climate than Sweden (6*a*), is only 4 per cent. of the surface, as against 12 per cent. or more in Sweden.

144*a*. The **rivers** of the peninsula are, for the most part, too **much obstructed by rapids** to be of any great use for navigation, but some of their valleys are long enough and direct enough greatly to facilitate communication between the more populous districts on different sides of the plateau. **A railway** has been laid from Trondhjem, nearly due southwards, to Christiania, by the valley of the Glommen and the side of Lake Mjösen, which lies to the west of an easterly deviation of the Glommen. Another railway has been laid from Trondhjem eastwards across the tableland, from the eastern base of which it descends south-eastwards to Stockholm.

144*b*. Though the rivers of the Scandinavian peninsula are of little service to navigation, the **lakes** of the lowland region of southern Sweden are of high importance in this respect. Lakes Wener and Wetter, and other smaller lakes, together with the navigable portion of the Göta River, are all connected by a **ship-canal** 9 feet in depth, and water-communication is thus established between the opposite coasts of southern Sweden.

145. **Products and Commerce.**—In both kingdoms **timber** and timber products, such as doors and window-frames, wood-pulp and paper made from wood-pulp, and lucifer-matches, are of great commercial importance, the last mentioned especially in Sweden. In Norway the principal other exports are derived from the sea—**cod**, chiefly caught round the Lofoden Isles, and exported in the dried state; **herrings**, mainly from Bergen, the centre of the herring-fisheries; train-oil, a product of the northern whale-fisheries. Norway is to a greater extent than Sweden dependent on foreign supplies of grain, and Sweden, while importing large quantities of rye and rye-meal, has oats and barley to spare for export. Sweden, moreover, has long been renowned for its mineral wealth, exporting large quantities of excellent iron and iron ore, whereas the minerals of Norway (silver and copper) are not of great aggregate value. In both countries there is a deficiency of coal, though this fuel is found in Sweden in the part of Scania (Schoonen) adjoining the north end of the Sound. The chief mineral region of Sweden,

however, is in the east of the country, on both sides of the Dal River. Most important of all are the **iron-mines of Dannemora**, which have made Sweden famous for its iron for hundreds of years. **Far in** the north of Sweden there is another deposit of rich iron ore in Mount Gellivara. This was first connected by a railway (the most northerly in the world) with Luleå on the Gulf of Bothnia, and the railway has since been continued past other deposits of the ore to Narvik on the Ofoten Fjord in Norway, which is free from ice all the year round (6*a*). In the southern mining region Sweden also produces **copper**, at **Falun**, west of Gefle, and **silver** and **lead** at **Sala**, west of Upsala.

146. Chief Towns, Sweden.—The chief industrial towns are Stockholm, the capital, Gothenburg (Swedish, *Göteborg*), and Norrköping. The chief seaports, Gothenburg, the port most directly accessible from Great Britain and France, as well as from Hamburg and Bremen; Malmö, on the Sound; Halmstad, on the Kattegat. On the Baltic and its arms the chief seaports besides Stockholm are Gefle, Norrköping, Christianstad, Söderhamn, Sundsvall, Hernösand. Only ruins still testify to the former commercial importance of Wisby (Visby), on the island of Gottland.

147. Chief Towns, Norway.—Nearly all the towns in Norway of any importance are seaports. The chief are Christiania, the capital, and Bergen; among the others are Drammen, Tönsberg, Christiansand, Stavanger, Christiansund, Trondhjem, and in the far north Tromsö and Hammerfest. The shipping table in the appendix indicates the importance of the **wooden shipping** of Norway. This seems only natural, when we consider the abundance of timber for building-material, the large number of good and constantly open harbours inviting to a seafaring life, and the scantiness of the means of subsistence on the land.

Stockholm	340,000	**Christiania**	245,000
Gothenburg	170,000	**Bergen**	80,000
Malmö	90,000		

DENMARK.

148. **Area** (excluding the Faroe Islands), rather more than one-sixth of that of Great Britain.

The **islands** belonging to this kingdom, namely, Seeland, Fyen or Funen, Laaland, Falster, &c., between the Kattegat and the Baltic, and the island of Bornholm, farther east in the Baltic, are for the most part fertile and well peopled. The eastern half of the peninsula of **Jutland** likewise contains much fertile land and numerous good seaports, but the western half is largely composed of barren sand-hills, and is bordered by a line of dangerous sand-downs, without any good seaport. The construction of a ship-canal through the Liimfiord, in the north, and a port at its western end has been recommended by a Danish commission.

149. **Products and Commerce.**—Denmark is essentially an agricultural country, and above all devoted to the rearing of live stock (29). **Butter** is now the leading export, and butter, barley, wheat-meal and flour, cattle, swine, and horses make up more than 50 per cent. in value of the exports. The chief imports are grain, oil-cake, coal, iron and steel, and wood.

150. **Seaports.**—Copenhagen, the capital of the country, on the island of Seeland and the Sound, which is the shortest route between the Baltic and the Kattegat. Vessels of the largest size have to make use of the Great Belt between Seeland and Fyen. Elsinore, at the northern end of the Sound, where, till 1857, tolls were collected on vessels passing through this strait. On the east of Jutland, Aarhus and Aalborg, the latter on the Liimfiord; in the south-west, Esbjerg, which maintains a large trade in cattle and butter with Great Britain.

151. The **Faroe Islands**, north-west of Scotland, are dependencies of Denmark, and so also is the larger island of **Iceland**. The inhabitants of both maintain themselves chiefly by sheep-rearing, fishing, and the collecting of eggs and eider-down. The inhabitants of Iceland are only 70,000 in number, or about $1\frac{1}{2}$ to the square mile. The chief seaport of the island is Reikjavik, on the southern part of the west coast.

Copenhagen . . .	460,000	Aarhus	60,000
(With suburbs) . .	560,000		

SPAIN AND PORTUGAL.

152. Extent and Population.—The Iberian Peninsula, which is made up of the two countries named at the head of this chapter, has, with the islands belonging to these two countries, **an area** rather less than twice as large as that of the British Isles, but a population only about three-fifths as great as that of these islands. This population is chiefly settled round the circumference of the peninsula, so that there remains a large area in the interior with an average density about equal to that of the least densely peopled counties of Scotland.

153. **Surface and Communications.**—This low density of population is partly explained by the character of the surface, which is very mountainous and unfavourable to internal communications. The **Pyrenees**, which separate the peninsula from France, are as yet uncrossed by any railway (93). They are continued westwards by the Cantabrian and Asturian Mountains, which form the northern boundary of a tableland occupying the greater part of the peninsula with an average height of about 2700 feet in its northern half (Leon and Old Castile), and about 2600 feet in its southern half. This tableland is bordered everywhere, except in the west, by mountains and steep slopes presenting obstacles to railway construction, while the rarity of the population, and in many parts the absence of natural resources, hold out little prospect of remunerative returns on works necessary to overcome these obstacles. The intervals between the railways which ascend to the surface of the tableland vary from 60 to 150 miles in a direct line, the widest intervals being on the east side. The list of seaports in paragraph 159 shows how few of these have a direct connection with the interior. The series of mountain ranges which cross the tableland from west to east also present no little hindrance to communication, but the Sierra de Guadarrama is now crossed by one railway running north-east from Madrid to Saragossa, and another running north-west and branching to Avila and Segovia.

153*a*. The **rivers** of the peninsula, though of considerable length (three of them from two to three times as long as the Thames from its source to the Nore), add little to the means of communication. They are for the most part too much obstructed

by shallows and rapids to be navigable for any great distance, and as their beds mostly lie in deep valleys far below the level of the tableland, they cannot advantageously be connected by canals. The **Minho** is navigable only for a short distance from its mouth. The **Douro** is navigable to the Portuguese frontier, but only by small craft; and a bar at its mouth, crossed only by a narrow, shallow, shifting, and dangerous channel, generally prevents vessels of more than 800 tons (registered) from ascending even to Oporto. The navigation of the **Tagus** ends within the Portuguese frontier, and that of the **Guadiana** only a few miles above the point where it begins to form the frontier between the two countries of the peninsula. The **Guadalquivir** is the most important of all the rivers of the peninsula as regards navigation. The volume of its water is tolerably constant, being maintained in winter by rain, in summer by the melting of the snows of the Sierra Nevada, the lofty range that borders its basin on the south. It can be ascended as high as Seville by vessels of 1100 tons, and boats go up to Cordova. The only navigable river on the Mediterranean side is the **Ebro**, which allows small craft to ascend as high as Logroño, and sea-going vessels to Tortosa. But the lower part of the river can be used by sea-going vessels only during high-water, and a small **canal** has therefore been cut from Amposta (above the deltaic deposits of the river) to allow of such vessels coming and going at any time.

154. **Climate.**—The climate, as well as the physical features, is somewhat unfavourable to density of population. The total annual rainfall in the greater part of the peninsula is less than twenty inches (**76**, **163**), a higher rainfall being for the most part confined to the north and west coasts. Such rain as does fall is mostly winter rain, or autumn and winter rain, and the height of summer is a period of extreme drought, especially in the southern half of the peninsula. The temperature, on the other hand, is high.

154*a*. One advantage the climate of the Iberian Peninsula has. The prolonged period of high temperature allows of valuable crops being grown in quick succession wherever water can be obtained for **irrigation** (6*c*). In some of the plains and valleys at the base of the tableland water has been used for this purpose

in the most admirable manner, in some cases since the time of the Romans, in others since that of the Moors. The water of the **Ebro** is being increasingly turned to account in this way, and irrigation is now the chief use of the long canals that follow its general course in the west of Aragon. The **huertas** (gardens) of **Valencia** and **Murcia**, the former nourished by the waters of the Jucar and Turia or Guadalaviar, the latter by those of the Segura; the **huerta of Elche**, in which every drop of the summer waters of the Vinalapo is used up in supplying a grove of date-palms planted by the Moors; and the **vega of Granada**, fed by the Jenil, a tributary of the Guadalquivir, are all renowned throughout Europe. At Lorca, in the south of Murcia, "the water is in the hands of a large number of proprietors who may or may not be holders of land, and it is sold by public auction every morning during the irrigation season. . . . Each peasant buys the amount he requires for the day, and pays for it in advance, and the proceeds are divided amongst the various proprietors of the water. The average value of a cubic foot of water per second per annum, in this place, is £2300." The total area of irrigated ground in Spain is upwards of 4400 square miles, more than twice that of the county of Norfolk.

155. Agricultural and Forest Products.—The irrigated ground is used for the cultivation of vegetables, **southern fruits** of all kinds, mulberries, rice, and in some places for maize. **Oranges**, the principal sub-tropical fruit of Spain and Portugal, are confined to land at no great distance from the coast. Under the protection of favourable fiscal laws, the cultivation even of **sugar-cane** has been attended with no little success (though not unmixed success) in the provinces of Granada, Malaga, and Almeria. The vine thrives without irrigation (25). Wine is most abundantly produced in the north-eastern provinces, but the only wine for which Spain has a high reputation (sherry) is made in the south, in the neighbourhood of Jerez de la Frontera. The chief Portuguese wines (port, &c.) come from the valley of the Douro. The more fertile parts of the Spanish tableland produce **excellent wheat**, but no longer enough to meet the home demand. Among the crops more specially characteristic of Spanish agriculture are **chick-peas**, which enter into the daily food of the people of all classes, and are exported in con-

siderable quantity to Cuba, **onions**, and **garlic**. Spanish **wool**, famous down to the middle of the eighteenth century for its unequalled quality, no longer ranks so high in quality, and the Spanish export of this commodity is even surpassed in amount by the import. Of the forest products of the peninsula the most valuable is **cork**, which is chiefly obtained from the mountains in the north-east of Catalonia, those in the west of Andalusia, and those in the east of the Portuguese province of Alemtejo ("along the Tagus"). The **olive** abounds both wild and cultivated in the southern half of the peninsula, but the oil is poorly prepared.

156. **Minerals.**—The mineral wealth of Spain has been renowned for ages, though even yet it is far from being fully developed. **Iron ore**, excellent for steel-making (60), is mined in immense quantity in the Basque provinces near Bilbao, and is also raised not far from Corunna in the north-west of Spain, and in increasing quantity in the south of Spain, near Almeria, Seville, Malaga, and Marbella, this last being a small seaport about midway between Gibraltar and Malaga, and also in Murcia near Cartagena. **Lead** is obtained at Linares in the north of Andalusia, and in other places. The chief **copper-mines** (63) are those of Rio Tinto and Tharsis, in the west of Andalusia. The ore is a kind of iron pyrites containing sulphur and iron as well as copper. It is largely exported (64). **Silver** is found not only associated with lead at Linares, in the east of Andalusia, but also in other forms in several other places. Almaden, in the south-west of New Castile, has the principal **quicksilver** (cinnabar) mines in the world, except those of the United States (64). **Coal** exists in large quantity, but unfortunately not in many cases in convenient situations, and the production is as yet only small. The principal mining region is in Asturias, and communicates by rail with the port of Gijon. **Bay-salt** is largely produced on the coasts both of southern Spain and southern Portugal, and rock-salt is also abundant. **Phosphorite**, a valuable manure, is found in large quantity in Estremadura, and is exported to Portugal and elsewhere.

157. **Manufactures.**—Cotton and other textile industries are carried on principally in Catalonia and in the Basque provinces. In the latter district the water-power of the Cantabrian

mountains is employed, as well as coal, in driving machinery. Iron industries are rising up rapidly in the regions where coal and iron ore most abound. Leather manufactures (no longer so renowned as in former times) are carried on in many places, esparto-plaiting is pursued in the provinces which produce this grass (in the south-east), silk-spinning and weaving to a small extent in Valencia and Murcia, where the silkworm is principally reared.

158. **Foreign Commerce.—Spain.—Wine** long held the leading place among Spanish exports,[1] but that place now belongs to **iron ore. Lead, copper,** and quicksilver are also largely exported, the greater part of the copper in the partly refined state known as regulus. Among the other leading exports are cotton manufactures, raisins and grapes, oranges and other southern fruits, animals, boots and shoes, cork, and paper. The principal imports are raw cotton, wheat, coal and coke, ships and boats, timber, and building materials. France and England take the lead both in the import and export trade with Spain. The United States and Germany rank next among those supplying the imports. The former Spanish dependencies of Cuba, Puerto Rico, and the Philippines collectively rank third among the countries receiving the exports.

158*a*. **Portugal.**—The trade of this country is in many respects similar to that of Spain; but among the exports figs are the most important of the southern fruits, cork is of more importance than in Spain (absolutely as well as relatively), and copper ore is the only metallic commodity of any consequence. The United Kingdom holds the first place both in the import and export trade of Portugal, supplying more than a fourth of the total value of the imports. Brazil (318) takes about 20 per cent. of the Portuguese exports, ranking next in this respect after Great Britain.

159. **Chief Industrial and Commercial Towns.—A. Spain.— Capital,** Madrid, in New Castile, in the middle of the country.

Madrid 570,000

[1] In 1881–85 the value of the export of wine (mostly common wine sent to France) from Spain was more than 40 per cent. of the value of the total exports. In 1901 it was only about 6 per cent., and less than half the value of the iron ore, while all metals and metallic ores made up nearly 30 per cent.

Other inland centres of trade.—Valladolid, on the Pisuerga, a few miles above its confluence with the Douro, in Old Castile. Toledo, on the Tagus, in New Castile, still noted for the sword-blades which in former times made the name of the city almost a synonym for a sword. Saragossa (Span. *Zaragoza*), on the Ebro, in Aragon. Cordova, on the Guadalquivir, a decayed town, long ago celebrated for its leather manufacture, so that it gave name to a kind of leather—cordovan or cordwain. Granada, on the Jenil (154*a*).

Seaports, named in order beginning at the north-east. Barcelona, for centuries the chief seaport and manufacturing town in Spain; Tarragona, the chief seaport for the valley of the Ebro in Roman times, Valencia (roadstead), Alicante, Cartagena, Almeria (place of export of grapes), Malaga, Marbella, Tarifa, Cadiz, Seville, on the Guadalquivir, which is dredged for ocean shipping up to this town; Palos, the place of departure of Columbus on the voyage on which he discovered the New World; Huelva, the place of export of copper and copper ore from the Andalusian mines (156); Vigo, Pontevedra, Corunna (Span. *Coruña*), in Galicia; Gijon, Santander, Bilbao, San Sebastian, on the north coast; Palma on Majorca; Mahon on Minorca. All the ports on the north coast are obstructed by bars due to the accumulation of sand carried along by a current which here creeps eastwards. Below Bilbao, the chief place of export of iron ore on the mainland of Europe, the bar has been deepened at great expense.

B. Portugal.—Lisbon, on the Tagus, the capital of the country and chief seaport; Oporto, on the Douro; Setubal, south of Lisbon, the St. Ives of British sailors, chief place of export of bay-salt. A new harbour for Oporto, accessible to vessels of 5000 tons, has been constructed north of the mouth of the Douro, at Leixoes.

Valladolid	70,000	Malaga	135,000
Saragossa	105,000	Cadiz	70,000
Cordova	65,000	Seville	155,000
Granada	75,000	Santander	65,000
Barcelona	560,000	Bilbao	95,000
Valencia	235,000	Palma	65,000
Alicante	60,000	Lisbon	355,000
Cartagena	100,000	Oporto	170,000

160. Gibraltar, a fortress on a commanding rock at the **east** of the strait of that name, has been in the hands of the British since 1704. It is of importance as dominating the entrance to the Mediterranean. The Spaniards complain of the smuggling alleged to be carried on across the British frontier. It is an important coaling station, and great works are now being carried out with a view to the development of this trade.

ITALY.

161. Area and Population.—The **area** of Italy is about one-twelfth less than that of the United Kingdom, but the **population** more than one-fifth smaller.

162. Surface and Communications.—Enclosed on the north and north-west by the Alps, and washed almost everywhere else by the sea, the country has well-defined natural boundaries. The hindrance to intercourse presented by the Alps and the nature of the communications now established across and through this barrier have already been considered (93, **121**). Many passes across the **Apennines**, which are continuous with the Alps in the north-west, and stretch through the entire peninsula, have facilitated the construction of railways. Between the Alps and Apennines there lies a great plain in which the communications are abundant and easy.

162*a*. The **navigable rivers** of Italy are nearly all confined to this great northern plain. The Po is navigable for boats to Turin, for steamers to Valenza, seven miles below the confluence of the Sesia, but its value as a waterway is greatly diminished by the marshy character of its banks, which hinders the growth of towns. The **Ticino** is navigable from its issue from Lake Maggiore, the Adda from its issue from Lake Como, the Adige from a little below Bozen in Tirol (Austria), the Bacchiglione from Vicenza, the Brenta from Padua. In the peninsular portion of the country the chief navigable rivers are the Arno and the Tiber, the Arno being navigable by boats to Florence, the Tiber by steamers to Rome, and by smaller boats 60 miles higher up (see **168**).

163. Climate.—In comparing Italy under this head with

Spain and Portugal it is important to observe that Italy lies further north than the Iberian Peninsula, that the Italian peninsula is narrower, and that the surface is more irregularly mountainous. The portion of Italy generally characterised by extreme summer drought (south of about 40° N.) is smaller than in the Iberian Peninsula. Whereas in Spain the edges of the tableland serve to cut off rain to a large extent from the interior (6*b*), the mountains of Italy promote the rainfall, especially since they descend to the sea on both sides. Even the plain on the north of the Apennines is not deprived of rain through the intervention of these mountains, since the rain-bearing winds are forced to ascend still higher by the loftier ranges of the Alps. The glaciers of these mountains likewise help to maintain the volume of the innumerable streams which descend from them, and thus increase the supply of water for **irrigation**, which has been carried out on a more extensive scale in Italy than anywhere else in Europe. The irrigated area in the Po basin is about equal in size to the counties of Lincoln and Norfolk combined.

164. **Agriculture.**—Altogether, the climate and soil of Italy are sufficiently good to allow of the existence of a large population directly dependent upon agriculture. The area occupied by corn-crops is about twice as great as in the United Kingdom, over and above the area under vineyards, olive-yards, fruit-trees, flax and hemp, pasture-grasses, &c. The principal corn-crop is **wheat**. It covers several times as great an area as in the United Kingdom, but the only Italian wheat that is noted for its quality is that of Apulia, in the south-east, where there is grown a hard wheat well adapted for making maccaroni. **Maize**, the second Italian corn-crop in extent of acreage, furnishes the chief food of the people throughout a large part of the country. **Raw silk** (31) is produced chiefly in the Po basin, and **rice** is the most valuable crop of the **irrigated** fields of that basin. The production of **wine** (25) is extending most rapidly in the southern parts of the country, above all, Sicily (169B.). Most Italian wines are ill-prepared, so that they deteriorate instead of improving with age. **Olives** (47) are grown in many parts of the country; **figs** and **oranges** (24) mainly in the south, oranges most largely in Sicily. The **grass and forage crops** of

Italy are of special importance in the irrigated plains. The meadows are regularly mown four times a year, and in some peculiarly favoured districts as many as nine crops have been known to be reaped in a single year from the same field. The richness of these meadows leads to a large trade, both export and import. Cattle imported from Switzerland and the Tirol are fattened for export, and reared for cheese-making (Parmesan, Gorgonzola, Stracchino). The rearing of **poultry** is likewise characteristic of the agriculture of northern Italy, on which account there is a large export of **eggs** and **poultry.** Italian eggs now even reach England. Apulia, besides being noted for its wheat, is noted for its **wool.** The sheep of this province are migratory, like those of the Spanish tableland, wide tracks being reserved for their migrations.

165. Minerals.—The Sicilian **sulphur** (64), produced chiefly in the neighbourhood of Caltanissetta, Girgenti, and Catania, is the most important mineral product in the kingdom. **Iron ore** of excellent quality is obtained in the island of **Elba,** and is largely exported to the United Kingdom. **Lead** and **zinc** are important products of Sardinia (the south-west, round Iglesias). Tuscany produces among the Apuan Hills in the north the celebrated **statuary marble** of Carrara, and in a volcanic district in the south large quantities of **boracic acid** escape from the ground in the form of vapour, and the acid is concentrated in water and then solidified. Mineral fuel exists chiefly in the form of lignite (59), and even that is far from abundant.

166. Of Italian manufacturing industries, the **reeling and throwing of silk** (31) is the most important commercially, but the weaving of silk by power-looms at Como and elsewhere is developing with remarkable rapidity. The woollen industry is one of old standing, and is also growing, while that of cotton is expanding even more rapidly. The **iron industry** has been specially encouraged in recent years by the Italian government with the view of making itself independent of foreign countries. Large works have been established at Terni, where advantage is taken of the enormous water power furnished by the falls on the Nera, a left-bank tributary of the Tiber, and where there is the further advantage , a few miles distant. The El e time

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at various places on the opposite coast, and are now smelted also on the island itself.

166*a*. The characteristic manufacturing industries of Italy, however, are mainly those of an artistic or semi-artistic nature. The **glass-works** and the lace industry of **Murano**, an island town to the north of Venice, have long been noted, though these industries have both declined. Florence produces **fine earthenware and mosaics**; Naples, Florence, and other towns are noted for their works in **coral (54) and shell** (cameos), and many Italian towns for their **sculptures** in marble and alabaster and their **artistic woodwork**. Tuscany is well known for its **straw-plaiting**.

167. **Foreign Commerce.**—In the special commerce of Italy (under which head are included all articles that have paid customs duty), raw silk and silk manufactures make up more than 30 per cent. of the total value of the exports. Among the other leading exports are animals and their products (eggs, cheese, &c.), grain, wine, olive-oil, hemp and flax. Among the imports, grain, metals, and other minerals, raw and manufactured silk, raw cotton, and animals and their products, are the chief. The trade is chiefly with the United Kingdom, Germany,[1] the United States, and the countries on the Italian frontier, the United Kingdom coming first in supplying the imports, Germany and Switzerland in receiving the exports. It is worthy of note that a very large proportion of Italian export commodities are sent abroad by land—through the Alpine tunnels (168, 169).

168. **Chief Industrial and Commercial Towns.**

Capital.—Rome, on the Tiber, a city now rapidly growing in population. Its importance is mainly due to its being the capital, and that again is to be ascribed to a predilection arising from historical associations.[2]

Rome (with suburbs) . . .	540,000

[1] In the period 1866–70 Germany's share in the trade with Italy was less than 1 per cent. both in imports and exports. In 1896–1900 Germany supplied about 12 per cent. of the value of Italian imports, and received about 16 per cent. of Italian exports.

[2] Various plans have been formed for making Rome a seaport by canal or the canalisation of the Tiber.

Other inland centres of trade.—Milan (Ital. *Milano*), in the middle of the fertile plain of Lombardy, the great seat of the Italian silk-trade, an important railway centre, the first important town on the railway from Switzerland through the St. Gothard tunnel (121), and the place of convergence of the roads following the shores of Lakes Maggiore and Como across the Simplon, St. Gothard, Bernardino, Splügen, and Maloja passes. Como, Bergamo, Brescia, towns at the base of the Alps, north and north-east of Milan. Turin (Ital. *Torino*), in Piedmont, at the mouth of the valley of the Dora Riparia, the valley traversed by the railway through the Mont Cenis tunnel (93). Florence (Ital. *Firenze*), the chief town of Tuscany, at the head of the most considerable and fertile plain of that province, and so situated that all the traffic between southern Italy west of the Apennines and northern Italy from Milan eastwards, must pass through it. Bologna, the chief town in Emilia, at the point of intersection of the routes east and west of the Apennines in southern Italy, and from Venice and Milan in northern Italy. Verona, a fortress on the Adige (126) in Venetia.

169. **Seaports.**—**A. On the mainland**, mentioned in order beginning in the north-east. (1.) On the Adriatic:—Venice (Ital. *Venezia*), situated on numerous islets in a lagoon guarded by low sand ridges and entered by two channels, the Lido and Malamocco; the chief port for the eastern part of the northern plain, and for the traffic across the Brenner railway (126); Chioggia; Ancona; Bari; Brindisi, where passengers and mails are taken up and landed on the land-route to and from the Isthmus of Suez and the East. (2.) On the west coast:—Reggio, on the Strait of Messina; Amalfi; Naples (Ital. *Napoli*), on a small but very fertile plain, the most populous for its extent in all Europe, except where the population depends on manufacturing industry; Cività Vecchia, the present port of Rome; Leghorn (Ital. *Livorno*), the port of Florence, a modern port

Milan	560,000	Venice	160,000
Brescia	85,000	Ancona	65,000
Turin	430,000	Bari	105,000
Florence	240,000	Reggio (Emil.)	70,000
Bologna	175,000	Naples	725,000
Verona	80,000	Leghorn	105,000

taking the place of the once celebrated port of Pisa, whose harbour is now silted up; Spezia, a naval station; Genoa (Ital. *Genova*), the leading Italian seaport as regards the value of its imports, a port that has greatly benefited by the construction of the Mont Cenis and St. Gothard tunnels, and which for that and other reasons is rapidly rising in importance; Savona. **B. In Sicily**: Palermo, the chief Sicilian port, exporting fruit, sumach, &c.; Messina; Catania in the east, Girgenti and Licata in the south, all exporting sulphur; Marsala in the west, exporting a well-known wine which takes its name from the town. **C. In Sardinia**. Cagliari, in the south.

170. **Malta** and **Gozo**, two islands belonging to the British situated to the south of Sicily. Valetta, on Malta, is important as a fortress and coaling station. The islands are densely peopled, the inhabitants speaking a debased Arabic. Many of the upper classes speak Italian, but the use of English is rapidly spreading. Of the products of the islands, that of most commercial importance is early potatoes, which are exported to England.

THE BALKAN PENINSULA.

171. **Extent and Divisions.**—Under this name we include the greater part of the region lying to the south of the Danube and Save. Together with the adjacent islands belonging to Greece and to European Turkey, the total **area**, exclusive of the Austrian province of Dalmatia, is about one-fourth larger than that of the United Kingdom. Comprised in this area are **European Turkey**, the kingdoms of **Greece** and **Servia**, the principality of **Bulgaria**, with **Eastern Roumelia**, the principalities of **Montenegro** and **Albania**, and the Austrian provinces of **Bosnia** and **Herzegovina**. The **population**, except near the chief towns and on some of the islands, is scanty. Great changes were made among these states at the end of the war of 1912–13, when the principality of Albania was created and Crete was definitely annexed to Greece.

Spezia	65,000	Catania	200,000
Genoa	270,000	Marsala	60,000
Palermo	350,000	Cagliari	55,000
Messina	125,000		

172. Surface and Communications.—The surface, including that of the islands, is highly mountainous, the most considerable extent of lowlands being those which border the Danube in the north of Bulgaria. The Save and the Danube form an important line of communication on the north (126*a*, 140). The other rivers of the peninsula are of little importance for navigation, and the irregularity of the surface places great obstacles in the way of inland communication by roads and railways. Since August 1888, however, two important railways have been opened connecting the Danube at Belgrade with Constantinople and the Ægean Sea. One of these ascends the valley of the Morava to the frontier of Servia, and descends the valley of the Vardar to Salonica. The other branches off from this route eastwards at Nish, in Servia, ascends the valley of the Nishava, and descends the valley of the Maritsa, in which are the most extensive lowlands of the peninsula away from the Danube. In the lower part of this valley the route divides. One branch continues south-eastwards to Constantinople, and the other, keeping to the valley of the Maritsa, touches the Ægean Sea at the port of Dede Agach. A carriage-road made by the Russians has since 1879 crossed the Balkans at the Shipka Pass (4000 feet), but the descent from this pass on the southern side is too abrupt for a railway, even though the route on which it occurs is in other respects highly advantageous.

172*a*. A **ship-canal** 26 feet in depth has been pierced through the Isthmus of Corinth, not merely for the purpose of effecting a saving in time (about half a day for steamers) in the voyage between the east and west of Greece, but also to enable ships to avoid the often dangerous voyage through the rocky waters in the neighbourhood of the island of Cerigo.

173. In 1893 works for the **draining of Lake Topolias** or Kopais, in Bœotia, into the channel between the island of Eubœa (Negroponte) and the mainland were successfully completed, and thereby nearly 100 square miles of excellent soil capable of irrigation added to the cultivable land of Greece. Similar land adjoining now yields from 1600 to 1800 lbs. of cotton per acre.

174. Climate and Agricultural Products.—Notwithstanding

the peninsular character of this region, and its southerly latitude, the climate, in accordance with the easterly position, is one of great extremes (6*a*). The principal commercial products of the peninsula are nearly all agricultural. **Cereals** form the chief article of **export** from Bosnia, Bulgaria and Eastern Roumelia, and Turkey; animals, and above all **pigs**, fed on the mast of beech-forests, from Servia; **currants** (24) from Greece, the best qualities from the south shore of the Gulf of Corinth. Of the cereals, maize predominates in Bosnia and Servia, wheat in the rest of the peninsula. Among special agricultural pursuits the most noteworthy is that of the cultivation of roses, for the sake of producing the valuable perfume known as **attar of roses** (in the valley of the upper Tunja). Orchards, in which **plum-trees** predominate, abound in Bosnia and Servia, and furnish a leading article of export from both. Wool is an important product in Turkey. **Wine, tobacco, and silk** are produced more or less everywhere, and the export of Bosnian and Servian wine (chiefly for mixing with other wines), though as yet small, is steadily increasing.

175. Minerals and Manufactures.—Like most mountainous countries, the Balkan Peninsula is rich in minerals; but owing to the defectiveness of the communications, as well as the sparseness of the population, the mineral resources are as yet very inadequately developed. Greece, in which valuable minerals are found close to the sea, is the only country belonging to the peninsula in which the mineral products take a leading place among the exports. The chief minerals of the country are the **silver-lead** and manganiferous iron ore of Laurium (at the south-eastern extremity of Attica), and the **iron ores** of the island of Seriphos (south-west of Syra). Metals and metallic ores make up 20 per cent. of the value of the exports from Greece. Among the minor minerals of Greece is the statuary marble of the island of Paros. Silver-lead, iron, copper, and coal-mines are all worked with success in Servia. In Bosnia the most successful mines are those of brown coal (lignite), iron, manganese, chrome, and copper. In Turkey are the copper mines of the Rhodope Mountains, the marble quarries of the islands that give name to the Sea of Marmora, and those of Mount Athos, and the manganese mines of Kassandra in the province of

Salonica. Salt is produced on the bays of the Adriatic and the Ægean. The **manufactures** throughout the peninsula are almost entirely of merely local importance. The making of **carpets** in Turkey (at Salonica and elsewhere) is the only branch of manufacturing industry that furnishes an export of any consequence.

176. **The chief countries with which the foreign commerce** of the different parts of the peninsula is carried on are the United Kingdom, Austria-Hungary, Russia, and France. England receives more than 30 per cent. in value of the Greek exports, and Russia, England, and Austria-Hungary furnish nearly 60 per cent. of the imports, the largest of which is grain. In Turkey, the United Kingdom takes the first place among the countries which furnish the imports. In Bulgaria and Servia, the chief rivals are Austria, Germany, and Great Britain, the Austrian trade being favoured by the Danube, both German and Austrian by the unbroken railway connection, while the British trade has to be carried on mainly by the southern and eastern ports. Among these last may be included, however, the Roumanian port of Braila, on the Danube, by means of which a considerable portion of the foreign commerce of Bulgaria is conducted.

177. **Inland Towns.**—Adrianople, in Turkey, at the confluence of the Maritsa and Tunja; Philippopolis, higher up on the Maritsa, capital of Eastern Roumelia; Sofia, capital of Bulgaria; Belgrade, capital of Servia, and an important fortress and river-port at the confluence of the Danube and Save; Serajevo, the capital of Bosnia; Mostar, that of Herzegovina; Athens, that of Greece; Larissa, the chief town of the vale of Thessaly in northern Greece; and Yanina, in the largest plain of southern Albania (Greece).

178. **Seaports.**—(1.) **In Turkey**: Constantinople, on the strait of the same name, with an admirable natural harbour known as the Golden Horn, opening southwards into that strait; Rodosto, on the Sea of Marmora; Gallipoli, at the inner end of the Dardanelles; Dede Agach and Salonica, or Saloniki, the

Adrianople	85,000	Athens	170,000
Sofia	100,000	Constantinople	1,200,000
Belgrade	85,000	Salonica	185,000
Serajevo	50,000		

second in importance of the seaports of European Turkey, on the Ægean Sea; Prevesa, at the mouth of the Gulf of Arta, on the Ionian Sea; and Durazzo (the ancient *Dyrrhachium*), on the Adriatic; Candia (Megalokastro) and Canea, on the Island of Crete. Scutari, in northern Albania, was at one time a seaport accessible to large vessels, but the Boyana, the outlet of Lake Scutari, has been obstructed by deposits brought down by an arm of the Black Drin, which now joins it, to such an extent that sea-going vessels can no longer reach it at all. (2.) **In Greece**: Volo, on the gulf of the same name, the port of Thessaly; Piræus, the port of Athens; Nauplia, Marathonisi, and Kalamata, on three gulfs of the Morea; Patras, on the Gulf of Corinth; Corfu, Cephalonia, and Zante, on the three Ionian islands of the same name, and Syra, or Hermoupolis, on the Island of Syra, among the Cyclades. Among Greek ports the Piræus ranks first in the value of the imports, Patras, the chief place of export of currants, first as regards exports. (3.) **In Bulgaria**: Varna. (4.) **In Eastern Roumelia**: Burgas. (5.) **In Montenegro**: Antivari and Dulcigno.

ASIA.

179. Asia is the largest of the continents, and that which contains the greatest number of inhabitants, but its population is very unequally distributed. Taken roughly, the distribution of the population answers to that of the rainfall. Almost the only part of the continent with an abundant rainfall is that in the south-east, to the east of the river Indus, in which **monsoon winds and rains** occur (6*b*). Vast areas in the interior are tablelands varying from 2200 to 18,000 feet in height, from which still higher mountains cut off the access of rain (6*b*). The plains in middle latitudes in the west are equally arid. Outside of the monsoon region there is probably not one million square miles, perhaps one-tenth of this section of the continent, in which the total rainfall of the year amounts to as much as 16 inches (76).

Canea 25,000

COUNTRIES OUTSIDE OF THE MONSOON REGION.

180. **SIBERIA.**—This region, composed mainly of a vast plain in the north and west, and of tablelands and mountainous country in the east and south-east, and extending in all over an area of nearly 5,000,000 square miles, was acquired by Russia mainly in the seventeenth century, and its colonisation has been going on ever since. Deported criminals and political offenders form a large element of the population, but free settlers are arriving from Russia in greater and greater numbers. The total Russian **population** of Siberia amounted at the census of 1897 to about 5,000,000, two-thirds of whom are in Western Siberia, which is, roughly speaking, synonymous with the basin of the Ob. In that basin the settled area is almost entirely to the south of 58° N.

181. **Agriculture** is the principal occupation of the people, and grain has already risen to the rank of the chief export. The whole of the southern belt as far as 60° N. is described by Russian authorities as being more or less fit for cultivation, though large parts of this tract will first have to be cleared of forests, and other areas are at present marsh-land. In estimating the value of this region, however, the deficiency of rainfall indicated in paragraph 179 must be taken into account; but, on the other hand, it is to be remembered that during half the year, when the temperature is below freezing-point, there is little loss of moisture by evaporation, that the rainfall, though scanty, occurs chiefly in the summer months (the season of growth), and that the high temperature and bright suns of the eastern summers make up for their short duration (6*a*). North of this cultivable region the chief products are those of the **forests**, including **furs**, and still further north lie the treeless moss-covered tundras, in which the only article of value in commerce is **fossil ivory** obtained from the remains of an extinct species of elephant (the mammoth).

181*a*. The **mineral wealth** of Siberia is likewise very abundant. Siberia produces at least three-fourths of the Russian **gold**, the chief **goldfields** being at the present time in

the east. The country also contains untouched veins of silver, and extensive deposits of iron ore, lead, copper, and graphite, besides coal. Till recently graphite, found in the mountains to the south of the Yenisei basin, was commercially important, but it is now little worked owing to the competition of Ceylon (209). One **coalfield**, containing also iron ore, and partially covered by forests, covers an area of upwards of 16,000 square miles in the upper part of the **basin of the Tom.**

182. The chief obstacle to the commercial development of Siberia is the **deficiency of communications.** The great **navigable rivers**, the Lena, Yenisei, and Ob, draining into the Arctic Ocean, and the Amur, draining into the Pacific Ocean (Sea of Okhotsk), afford with their numerous navigable tributaries a large extent of waterways. To complete the line of water communication between Lake Baikal and the Urals, a canal is being made in about lat. 58° N. connecting the basins of the Yenisei and Ob, and the railway to Perm across the Urals now begins at Tyumen, the limit of navigation on one of the western tributaries of the Tobol. But this route is impeded by rapids on the Angara, the outlet of Lake Baikal; it is stopped by ice for five and a half or six months in every year; it is at best a very circuitous route; and, lastly, it carries the principal products of Siberia to a land which abounds in similar products, and in which, accordingly, they have a smaller value than they would have elsewhere. On this account it is especially unfortunate for Siberia that its chief navigable streams open into seas so long closed by ice that it is extremely difficult to establish communication by sea with their mouths. Repeated attempts have been made to utilise the Yenisei for commerce with the west of Europe. A certain measure of success has been achieved, but it is admitted that a real commercial success cannot be maintained without the remission of customs duties, which for a time was granted. A scheme has been promoted for bringing the basin of the Ob into connection with the outside world by means of a railway from Obdorsk, near the mouth of the Ob (just to the north of the Arctic Circle), across the northern part of the Urals to the Arctic Ocean.

182*a*. Siberia is now traversed almost from end to end by the Siberian Railway, the first stone of which was laid at Vladi-

vostok, at the Pacific terminus of the railway, by the Grand-Duke Nicholas, now the Tsar Nicholas II., on May 19, 1891, and which was completed before the end of 1902, except for a break round the south of Lake Baikal. The railway for most of its length follows approximately the route of the old postal road, along which wheeled vehicles passed in summer, and sleighs with greater rapidity in winter, beginning at Tyumen, and passing through the towns of Omsk, Tomsk, Krasnoyarsk, and Irkutsk. The railway, however, enters Siberia from European Russia far to the south of Tyumen, and passes a considerable distance to the south of Tomsk, to which there is a branch line. East of Lake Baikal the railway passes through Nerchinsk to the Amur valley, from which a line ascends that of the Usuri southwards, and then descends to Vladivostok. The main line, however, now branches off above Nerchinsk, and runs south-east through Manchuria to the fortress of Port Arthur and the commercial port of Dalny, at the end of the Liautung peninsula. Across Lake Baikal trains are carried by a large train-ferry and ice-breaker.[1]

183. Kiakhta, on the frontier opposite the Chinese (Mongolian) town of Maimachin, a little to the east of the Selenga, is worthy of note as the seat of a considerable trade with China, which exchanges tea and some minor articles for fur and other Siberian and Russian products. The chief towns of Siberia not on the railway are Tobolsk, at the confluence of the Irtish and Tobol; Yakutsk, a centre of the fur-trade on the bend of the Lena that brings that river nearest to the Sea of Okhotsk; Yeniseisk, on the Yenisei; Barnaul, on the Ob; Semipalatinsk, on the Irtish.

184. **RUSSIAN CENTRAL ASIA.**—To the south of Western Siberia the greater part of the territory west and north of the Chinese, Indian, Afghan, and Persian frontiers is either directly under Russian administration or under Russian influence. There still remain the two **semi-independent khanates of Khiva**

Tomsk	70,000	Irkutsk	75,000

[1] The connection round the south end of Lake Baikal through difficult mountainous country was completed and opened on the 25th of September 1904.

(now confined to the west bank of the Amu) and **Bokhara** (including part of the Pamir).

185. The western part of Russian Central Asia consists mainly of plains and low tablelands, mostly desert. Throughout the region, indeed, cultivation keeps for the most part to the neighbourhood of the mountains (6*b*). Where carried on at a distance from the mountains it is only by the favour of rivers which have gathered volume enough in the mountainous region to reach a considerable distance into the plains. Three rivers reach large salt lakes. These are the Ili, which enters Lake Balkhash through a swampy delta, the Sir, or Jaxartes, and the Amu, or Oxus, which flow into the Sea of Aral. The Zerafshan, the Murghab, and the Heri Rud, on the other hand, all dry up in the sands. Cultivation is carried on where possible along the banks of these rivers and their tributaries, and where the nature of the ground admits of it large tracts are irrigated by means of their waters. The area of the **Merv** oasis, which uses up the water at the end of the Murghab, is about 1700 square miles, that is, less than that of the county Lancaster; but the actually cultivated portion of this is scarcely one-third of the whole, say about as large an area as that of the county of Worcester.

Besides Merv, the principal oases are Khiva, fed by streams drawn from the Lower Amu; Bokhara, at the end of the Zerafshan; Samarkand, higher up on the same river, so that an extension of this oasis involves a diminution of the water-supply for Bokhara; Tashkent, watered by streams on the right bank of the Sir; Khojent, and Kokand, on or near the Sir, higher up.

186. The valleys lying among the eastern mountains, the valley of the Ili, that round Lake Issyk Kul (both in Semirechensk), and the upper valley of the Sir (Ferghana), are not only plentifully watered, but blessed with a **black soil** as rich as that of southern Russia. To these valleys, accordingly, Russian immigrants are rapidly streaming.

187. The Sir and Amu serve as means of carriage for the products of the region, but the commercial development of Russian Central Asia has been greatly promoted by the con-

Tashkent	160,000	Kokand	110,000

struction of the **Trans-Caspian railway** from the port of Krasnovodsk, on the Caspian, along the base of the mountains in the north-east of Persia, then north-eastwards through the oases of Tejen, Merv, Charjui (on the Amu), and Bokhara, to Samarkand, and thence by Khojent to Kokand, Margilan, and Andijan in Ferghana, a distance of 1268 miles from Krasnovodsk. The chief product transported by this railway from Central Asia, including northern Persia and Afghanistan, is **cotton**, which is cultivated throughout the region, but chiefly in Ferghana.[1]

188. **CAUCASIA.**—The region so called comprises all the Russian territory on both sides of the Caucasus, and thus includes part of the tableland of Armenia. The richest part of this region is that which occupies the series of valleys between the chain of the Caucasus and the tablelands to the south. It is not only that part which has the climate most favourable to vegetation (a region, accordingly, of forests, vineyards, cornfields, and pastures), but also that which contains the bulk of the enormous **mineral wealth** of the Caucasus. Commercially, the mineral product at present of most importance is **petroleum.** A **coalfield** in the west, containing excellent coal, has now been connected by a branch line of **railway** with the main line which traverses the series of valleys from Baku on the Caspian to Poti and Batum on the Black Sea. Iron ore, manganese, and copper are also commercially important. Among agricultural products may be mentioned wool (some of fine quality), which is exported mainly to France (Marseilles). The chief town in Caucasia is Tiflis, on the Kur. It is connected by a road through the gorge of Dariel with Vladikavkaz (133*c*). Baku, the centre of the petroleum district, is now beginning to rival Tiflis in population and trade. A fair recently established here has had a great effect in promoting commerce between Russia and Persia.

189. **TURKEY IN ASIA.**—This includes Asia Minor, part of Armenia, Syria and Palestine, Mesopotamia (including Irak Arabi), and extensive coast-strips in Arabia.

Tiflis	200,000	Baku	180,000

[1] In 1900 the total quantity of cotton brought to European Russia from this region was considerably more than 200 million lbs.

190. **Asia Minor** is a tableland about 3000 feet in height, skirted by valleys and plains, some of which almost vie in fertility and beauty with the huertas of Spain (154*a*). The surface of the tableland is for the most part arid, and in great part desert. Even the largest rivers of the peninsula are too scantily supplied with water to be of much service as means of communication. The tableland is most closely shut off from the lowlands by the range of Taurus in the south-east, and hence the pass through these mountains known as the Cilician Gates, leading down to the valley of Adana, is a physical feature worthy of special note.

190*a*. On the tableland trade is carried on chiefly by camel caravans (11*a*), but railways are now under construction. Smyrna, at the head of a fine natural harbour on the west coast, is the point of convergence of railways that ascend three of the most productive valleys in Asia Minor, and one of these now joins a line that traverses a large part of the tableland. This latter line begins at the new port of Haidar Pasha opposite Constantinople, and runs south and then south-east to Konia, the ancient *Iconium*. This line it is proposed to continue to Baghdad and Basra (193). A branch from this line running eastwards a little to the south of the fortieth parallel of latitude reaches Angora, which gives name to the goat from which mohair (30) is obtained. A short line in the north-west connects the silk-working town of Brusa with the Sea of Marmora. In the south-east of the peninsula a railway from Mersina to Adana, on the Seihun, was completed in 1886. This railway opens up a valley of remarkable fertility, noted now as in ancient times for its extraordinarily abundant crops of wheat, and proved by trial to be excellently suited for the cultivation of cotton, as well as sesame (47) and other products.

190*b*. The nature of the products of the peninsula and its waters is indicated by the **chief exports of Smyrna**, the first ten in the order of importance being as follows:—raisins, valonia, cotton, opium, figs, barley (of excellent quality), liquorice, carpets, wool, sponges. A considerable proportion of the products of Asia Minor, including carpets, mohair, &c., reach western Europe by way of Constantinople, being sent thither from

Smyrna	375,000	Brusa	110,000

Trebizond, Samsun, Sinope, and other ports on the Black Sea, as well as the ports on the Sea of Marmora. From **Trebizond** an important **inland trade** is carried on by way of Erzerum in Armenia to Mesopotamia and northern Persia.

191. **Syria**, like Asia Minor, is a province presenting numberless indications of the decline following upon misgovernment. The population is estimated to be less than a tenth of what it once amounted to. The soil, in many places remarkably fertile, is to a large extent impaired by neglect; terraces for cultivation on the hillsides have been allowed to fall in ruins; and the general neglect has injured even the climate. The agricultural products are those characteristic of the Mediterranean generally; but the **silk** of the Lebanon, the **tobacco** of Latakieh, and the **oranges** of Jaffa may be specially mentioned.

191*a*. The chief port is Beirut, which has taken the place of the ancient Tyre and Sidon. Like all the other Syrian ports, Beirut has no harbour, but it has a fairly good roadstead, and it now has the advantage of a railway across Mount Lebanon, and through the breach in the Anti-Lebanon made by the Barada, the river of Damascus. It is hence the port of Damascus, which, after being for ages a great centre of the caravan-trade north, east, and south across the deserts, has now become a great railway centre. The line from Beirut has now a northerly connection to Aleppo. Southward run two lines, one ultimately going west down the valley of Jezreel to Haifa, south of Acre, the other through the wheat-growing plain of the Hauran to the Hejaz in Arabia. The city has an electric tramway car service. Alexandretta, or Iskenderun, to the north of Beirut, is the nearest port to Aleppo, which in the days when a large part of the trade of the East was carried on by way of the Persian Gulf and the Euphrates valley, was a commercial centre of the first rank. The now scanty trade of Aleppo with Alexandretta is still carried on by means of costly caravans. A railway connects Jaffa with Jerusalem.

192. **Cyprus**, the island in the angle between Syria and Asia Minor, is tributary to Turkey, but has been under British administration since the Treaty of Berlin in 1878. Cultivation is extending, and the export of wine (chiefly for mixing), carob beans,

Beirut	150,000	Aleppo	210,000
Damascus	350,000		

wheat, sesame, and other products is increasing. The vine is principally cultivated round Limassol, on the south coast. Locusts once formed the great plague of the island, but under British direction they have been successfully dealt with. The capital of the island is Levkosia, or Nicosia, in the middle of the great plain which stretches from west to east. The chief port is Larnaca, on the south coast.

193. **Mesopotamia.**—This name may be used in a wide sense to include the whole area, mainly a large plain, between the rivers Tigris and Euphrates, and the area under Turkish rule bordering upon these rivers and the Shat-el-Arab, the stream by which the united waters of the Tigris and Euphrates enter the Persian Gulf. This region is in the south wholly dependent upon irrigation, and neglect of the works for the purpose has led to an even more striking decline than in Syria and Asia Minor. At present the extent of cultivated land is believed to be equal to only about two-thirds of the area of Yorkshire; but it is estimated that between the site of the ancient *Babylon* in about 32½° N. and 34° N. from 4000 to 5000 square miles could be reclaimed with great profit. There are no railways. Camel-caravans and river-boats and rafts form the means of communication. Ocean-going steamers ascend to Basra (Bussorah) on the Shat-el-Arab, river-steamers to Baghdad on the Tigris, and smaller boats to the still important town of Mosul, opposite the site of the ancient Nineveh. On the Euphrates navigation is much obstructed by mills and other artificial hindrances, and boats do not ascend beyond 33½° N. Foreign vessels are not allowed on the Euphrates at all or on the Tigris above Baghdad. Baghdad, which has for more than a thousand years been the chief town in Mesopotamia, owes its importance chiefly to the remains of the old irrigation works carried out by the Arabs, but also to its advantages for trade. Besides being the head of steamboat navigation on the Tigris, it is the point of connection of a trade-route leading from Mesopotamia to central Persia.

194. **ARABIA** is made up mainly of desert tablelands upwards of 3000 feet in height. The coast is everywhere bordered by a strip of flat country, generally arid and fiercely hot, and the only parts that have even a fair supply of rain are the mountainous

Baghdad	225,000	Mosul	70,000

tracts in the south-west (**Yemen**) and the south-east (**Oman**). **Yemen**, the Arabia Felix of the ancients, has mountains rising to upwards of 10,000 feet in height, and has an ideal climate for coffee-culture. Even under Turkish rule the cultivation of the mountain-sides, which are carefully cut out into terraces, is admirable. The oases in the interior are the home of the Arab race in its purity, the typical region of the fleet desert horse, the camel, and the date-palm. Politically, Arabia is divided. The peninsula of Sinai belongs to Egypt, the remainder of the west coast to Turkey, and to the same power belongs a strip called El Haza, on the Persian Gulf, extending to the bay situated to the south of the Bahrein Islands. The remainder of the east coast belongs to the most powerful native ruler, the Sultan of Oman. **Aden**, on the south coast, near the Strait of Babelmandeb, has belonged to the British since 1839, and is annexed to the Presidency of Bombay (British India). Possessing an admirable natural harbour, it has at different periods been a great *entrepôt* in the trade between Asia, Africa, and Europe, and since the opening of the Suez Canal its importance in this respect has greatly increased. The site it occupies is nevertheless so sterile that all provisions and firewood have to be imported, and water is largely obtained by the condensation of the steam of sea-water. In **Yemen** the most important town is Sana, which lies at the height of about 7500 feet in the interior; and the port of Hodeida, in direct communication with this town, is the busiest seaport on the Red Sea. The port of Mocha, further south, gives name to the coffee of Yemen. In the Turkish province of **Hejaz** the chief town is Mecca, to which, as well as to its port, Jedda, the Mohammedan pilgrimages give a great deal of mercantile importance. The capital of **Oman** is Maskat (Muscat). The Bahrein Islands, which are subject to an Arab ruler under British protection, are noted for their pearl-fisheries.

195. **PERSIA**, like Arabia, is largely made up of tablelands more than 3500 feet in height, and in the east these are in a great measure desert. Mountains in the west and north promote a heavier rainfall (6*b*), which, even where insufficient for cultivation, as it mostly is, at least feeds numerous streams that can be used for **irrigation**, or supplies moisture which can be

Mecca	80,000

drawn from the heart of the mountains by tunnelled canals (karezes). Through the misgovernment of despotic rulers, however, production and commerce are in an extremely backward condition. The means of communication are very imperfect. From the capital, Teheran, situated at the base of the Elburz Mountains, there now runs one short railway (opened in 1888). Even yet there are only three or four good carriage-roads. From Teheran to Tabriz, the chief city in the north-west, goods have to be carried the greater part of the way by pack-animals, though this is on the route by Erzerum to Trebizond (190*b*).

195*a*. The only navigable river in Persia is the Karun, which belongs to the Mesopotamian plains, its mouth being connected by a side-arm with the Shat-el-Arab at Mohammera, a commodious port at which vessels of large draught can approach close to the shore. The navigation of the Karun as high as Ahwaz, where a rapid occurs, was thrown open to foreign vessels in 1888. Since then a mule-caravan road to Ispahan has been opened, and this seems likely to divert a good deal of trade from Bushire, on the Persian Gulf. This port has only an open roadstead, is connected by a wretched road with Shiraz, and is 530 miles from Ispahan, as against 277 miles by the Mohammera route. The port of Bender Abbas (Gombroon) is at the entrance to the Persian Gulf, opposite the island of Ormuz, which was an important seat of trade in spices and other eastern products even before it was taken by the Portuguese in 1515. The principal Persian seaports on the Caspian are Resht and Balfrush.

195*b*. The chief **export products** of Persia are pearls, opium (grown in the best quality round Ispahan), silk, carpets, gums (including gum tragacanth), and various drugs and dyes; wool (chiefly from Khorassan). The chief imports are cottons, sugar, tea, pearls, wheat, and flour.

196. **AFGHANISTAN** resembles Persia in surface, climate, and products, and is, like it, cultivated where irrigation can be practised, in the neighbourhood of the mountains; barren or

Teheran	280,000	Balfrush	50,000
Tabriz	200,000	Ispahan	80,000
Shiraz	50,000		

nearly barren elsewhere. It includes in the north-east the part of the Pamir containing the chief head-waters of the Amu. This region contains some of the loftiest valleys in the world (in places upwards of 15,000 feet in height), scantily inhabited by a few virtually independent tribes. The richest valleys of Afghanistan are in the north—those of the Kabul River and the Heri Rud. On the former river stands Kabul, the capital, which has been connected with Peshâwar by a carriage-road through the Khaibar Pass since the temporary occupation of the town by the British in 1879. On the Heri Rud stands Herat, the centre of a well-irrigated and fertile valley, about 120 miles in length by about 12 miles in width.

196*a*. The **trade with India** is carried on principally through the Khaibar and Gomul (or Ghwalári) passes leading into Punjab, the latter pass forming the route both from Ghazni and Kandahar. Across the Hindu Kush Mountains west of Kabul traffic is mostly carried on by the Bamian Pass, upwards of 12,000 feet high. The trade by this route has, however, been greatly reduced since Central Asia came under Russian influence. From Afghanistan to Sind there is a growing trade in wool.

Baluchistan is mainly made up of barren tablelands inhabited by sparsely scattered tribes. It is now under British control, and a tract in the north-east, forming the districts of Pishin and Sibi, and containing the fortress of Quetta (5500 feet), is part of British India. A railway through the Bolan and Nari passes connects Quetta with Sind.

THE MONSOON COUNTRIES AND THEIR DEPENDENCIES.

197. INDIA.—The area of India, inclusive of Kashmir, but exclusive of Burma, is equal to about fifteen times that of Great Britain. The population is one of great density, especially on the well-watered plains and lowlands. The greater part of India is under direct British rule, and almost all the remainder is subject to native princes under British control or influence. Portugal and France are the only two other European powers

Peshâwar 100,000

that retain possessions there. The **Portuguese possessions** consist of Goa, a district on the west coast about the size of the English county of Durham; Daman and Diu, on opposite sides of the north of the Gulf of Cambay. The **French possessions** consist of Pondichéry and Carical, on the Coromandel (south-east) coast; Yanaon, on the delta of the Godâvari; Chandernagore, above Calcutta; and Mahé, on the Malabar (south-west) coast.

198. There is no part of the world better marked off by nature as a region by itself than India, exclusive of Burma (210). It is a region, indeed, full of contrasts in physical features and in climate, and one that has never been, strictly speaking, under one rule; but the features that divide it as a whole from surrounding regions are too clear to be overlooked. On the north it is bounded by the Himalayas, the loftiest mountains in the world; on the west, as we have already seen, it is bounded by mountains and deserts; and on the east and north-east not only is it bounded by mountains, but lofty mountain chains and deep valleys follow one another for hundreds of miles. Elsewhere the boundary is the sea.

198*a*. **Surface and Communications.**—Within the mountains a vast plain, from about 150 to more than 300 miles in width, sweeps round from the delta of the Ganges and Brahmaputra in the east to that of the Indus in the west. The peninsular portion to the south of these plains is mainly made up of tablelands varying in elevation, for the most part from about 1500 to 2500 feet. On the west this tableland advances close up to the sea, and is bounded by the mountains called the Western Ghâts; but on the east its boundary is generally at a greater distance from the coast, and is more winding. The name of Eastern Ghâts is sometimes used as a general term for the whole of this boundary, sometimes restricted to its southern portion.

198*b*. In the plains **communication** is naturally easy. The scarcity of stone in the great plains of the north has been an obstacle to the making of good metalled roads, but the rivers of the Ganges basin mostly furnish good waterways, and the flatness of the surface has greatly facilitated the construction of railways. Of these there is now a tolerably dense network

in the middle of the Ganges basin, where they have almost superseded water carriage, except in the case of heavy goods. In the delta of the Ganges and Brahmaputra, which furnishes an unsurpassed system of water communications, the network of railways is not so close, and the Brahmaputra still forms the main highway to the north-east. A line of steamers regularly plies up and down it as far as Dibrugarh, about fifty miles below the angle made by this river on entering Assam. The Indus, owing to frequent shiftings of its bed and accumulations of sand, is not so easy to navigate, and since the railway has been laid up its valley the line of steamers that formerly plied on it has ceased to run.

198*c*. In the peninsular portion of India (the Deccan) the nature of the surface has placed special difficulties in the way of communication between the coast and some of the richer plains or depressions of the tableland in the interior. The rivers in times of flood are too impetuous, at other seasons most of them are too scantily supplied with water, to be navigable except near their mouths, and even where they are navigable higher up their navigation is impeded by rapids occurring where they break through the mountains bordering the plateau. Not only so, but they mostly break through these mountains in gorges too narrow or country too wild to be easily traversed by roads or railways. This is equally true of the Narbadá (Nerbudda) and Tápti, which flow westwards into the Arabian Sea, and of the Mahánadi, Godávari, and Kistna or Krishna, which flow eastwards into the Bay of Bengal. At present there are only three places at which the Western Gháts are crossed by railways; at the pass known as the Thál Ghát, by which the railway proceeds north-eastwards from Bombay to Allahabad; at the Bhor Ghát, by which the railway proceeds south-eastwards from Bombay to Poona and Madras; and between Dhárwár and the Portuguese harbour of Goa. South of the Nílgiri Hills, an important relative depression, little more than 1000 feet in height, between the Western Gháts and the mountains in the extreme south of the peninsula, affords a passage for the railway between Calicut and Madras.

Multan	100,000	Calicut	80,000
Poona	160,000		

199. Climate.—The Indian year is divided into **three seasons**—the hot, the rainy, and the cool; but these names are appropriate only in certain parts, particularly in the north-east and along the western coast. The **hot season** is from **March to May** inclusive, the period that embraces the change of the monsoons from a northerly to a southerly direction, but before the "bursting" of the monsoon; that is, before the southerly winds begin to be accompanied by rain. During this period the highest temperature is in the heart of the Deccan. The **rainy season** lasts from **June to October** inclusive, and during this period the western slopes of the Western Gháts, the hills of Assam, and in the east of the Himalayas, and even the plains of the Ganges delta, are deluged with rain, and the greater part of the north-east receives a fairly abundant rainfall. The part of the Deccan immediately behind the Western Gháts, however, has a very moderate and precarious rainfall, and so too have the plains in the north-west. A large part of the Indus valley is almost rainless. Where the rains are abundant, and the extent of cloud accordingly considerable, the temperature is mitigated, but in the arid region just referred to this is naturally the hottest period of the year. The **cool season**, or the season of the north-east monsoon, lasts from **November to February** inclusive, and this is the rainy season for the south-eastern plains; but the amount of rain that then falls is only one-third or one-fourth of that which falls on the best-watered plains in the north during the rainy season.

199*a*. The amount of rain that falls varies in India, as everywhere else, from year to year; but it is an important fact that, whereas in a country like England the variations in the rainfall may increase or diminish the abundance of a crop, in a large part of India the variation may be such that in one year there is an ample supply for a good crop, in another a rainfall wholly inadequate to produce any crop at all. It is this area of uncertain rainfall that is liable to be visited by famines, and hence **irrigation** has to be practised not only in those parts of the country in which there is always a deficiency of rain, but also in those in which it is doubtful whether the rain may be sufficient or not. Large parts of southern India are dotted with tanks for the storage of irrigation water. The plain of the

middle Ganges between Delhi and Benares is riddled with wells, sunk to a depth at which water is always to be had. But the greatest irrigation works are canals led from rivers. In some cases such canals are merely laid so as to carry off the surplus water of times of flood. These are known as inundation canals, and canals of this kind were much used by the natives before the British occupation. But works of much greater magnitude have since been made under British rule, in the form of canals into which is led nearly the whole body of water belonging to a river for a greater or less distance. The Ganges Canal, exclusive of distributing channels, is 1000 miles in length.[1] These canals serve also for navigation. The Buckingham Canal, from the mouth of the Godávari to beyond Madras, is a salt-water canal, and, accordingly, used solely for navigation.

200. **Agricultural Products.**—India is essentially an agricultural country. The main **food-crops** are rice in the best-watered plains (39), millets and pulses, including chick-peas (155), elsewhere. Millets, pulses, and oil-seeds (47), the chief of which are sesame, linseed, castor-oil, mustard, and different kinds of rape, are grown almost everywhere. Other crops are characteristic of certain regions. **Opium** (34) cultivation has its chief seats in the valley of the Ganges round Patna and Benares; and in Central India, in the region corresponding to the old kingdom of Malwa. **Cotton** (32) is mainly grown on the southern tableland, and above all in that series of fertile plains opened up by the railway that ascends the Tápti valley—that is, the plains of Khándesh in Bombay, and of northern Berár, both lying on both sides of the Tápti, and those of the Wardhá in the west of the Central Provinces. It is likewise largely grown on many other parts of the tableland—wherever, indeed, there is found a peculiar rich soil, very tenacious of moisture, known as the **black cotton soil** of India. **Jute** (44) is a product of Bengal; **indigo**, of various places, but most abundantly produced in the north; **tea** (35), of Assam and various parts of the Himalayas (Darjíling, Kumaun in the United Provinces, the Kangra

[1] About 1885 the length of canals under government supervision was above 28,000 miles, and the area irrigated by them about 12,000 square miles; in 1912 the length of the canals was 47,000 miles, and the irrigated area about 27,000 square miles.

valley in the Punjab, &c.); **coffee**, of the eastern slopes of the Western Ghâts south of about lat. 15° N. (Mysore and Madras); **cinchona** (42), of plantations on the Nílgiri Hills and the Himalayas (Darjíling); **pepper**, of the mountains in the south; **silk**, of Bengal and Assam, the latter yielding the principal supplies of tussur silk derived from the cocoons of wild moths. The great **cattle-rearing region** of India (66) is a belt extending from Cutch, through eastern Rájputána and the Punjab, to Kashmír, a belt in which the rainfall is not so excessive as to wash away all the saline constituents which are found to be so essential to the health of cattle. Cattle are the chief beasts of burden and draught in the greater part of India.

200*a*. For the most part two crops are reaped in the year, but not usually from the same land. In the area of the summer monsoon rains, one crop is generally sown in the early weeks of the monsoon (June and July) and reaped in October and November; the other is sown at the end of the monsoon and reaped from January to March. The latter, accordingly, is the winter crop; and as the winter throughout the north-western half of India is at least as cool as the summer of northern Europe, **wheat, barley, and linseed** are among the **winter crops** of the region wherever the duration of cool weather is long enough to ripen them. A line drawn from the Tápti to the upper waters of the Mahánadi may be held to mark approximately the southern limit of wheat cultivation (17). The chief region of production of this cereal is in the Punjab and the United Provinces (Agra and Oudh), that is, far in the north; but in the extreme south-east of the area just referred to wheat cultivation is rapidly extending.

201. **Minerals.**—The mineral wealth of India is tolerably abundant, but there are obstacles to its development in the face of foreign (chiefly British) competition. There are some extensive and numerous small coalfields (59); but the most extensive, in the west of Bengal and the east of Central India, lies in a region imperfectly explored and not easily accessible, and the Indian coal is much inferior to imported English coal. The chief coal-mining centres are **Rániganj**, about 120 miles north-west of Calcutta, Karharbari or Giridhi (supplying coking coal) and Dhanbaid, the centre of the Jharía coalfield. These fields, all near together, supply about four-fifths of

the coal raised in India. Bombay and Madras are still supplied with English coal. A few branch lines have been made to coalfields on the southern tableland. Here the Singareni coalfield, 120 miles east of Haidarábád, promises to be of great importance to Madras and the south. Iron ore is widely scattered over the country, and with the profuse employment of charcoal for smelting the natives make iron of excellent quality. But in the districts most accessible to foreign commerce this expensive mode of working has been almost superseded by the import of European iron and iron-wares. Among other Indian minerals of importance are **gold** (in Mysore and Madras), copper, salt, and saltpetre. **Salt** is obtained by evaporation all round the coast, and in the form of rock-salt in the Salt Hills in the north of the Punjab, but the production is not nearly enough to meet the home demand (64). Saltpetre is obtained from northern Bengal.

202. **Manufactures.**—Not only in metal-working, but also in various other branches of manufacture the Indian handicrafts have suffered greatly from European competition and the introduction into India of European methods of production. Cheap Manchester cottons, and more recently the products of the native cotton-factories of Bombay (65), have told heavily on the old hand-spinning and weaving. Even the fine muslins of Dacca (Bengal) and Madras, for which India has long been celebrated, have almost become a thing of the past. Silk-factories worked by steam have been started at Bombay, and jute-factories have long been worked with success in Bengal. In the making of various articles of luxury and art, however, Indian artisans still excel. **Cashmere shawls** are still made both in Kashmír and the Punjab (Amritsar, Ludhiána, and elsewhere). Rich figured siks are made in various towns. Indian carpets and rugs are articles of export, and so also are a variety of articles skilfully wrought in ivory, gold and silver, copper and brass.

203. **Foreign Commerce.**—In recent years jute and jute manufactures, rice, seeds (chiefly oil-seeds), raw cotton, hides and skins have formed half the value of the sea-borne **exports** of British India, including Burma. Among the other leading exports are tea, opium, wheat, and indigo. Cotton manufac-

tures, including yarn, make up two-fifths of the value of the **imports**, and among the other leading imports of ordinary merchandise are metals, railway materials, machinery and mill-work, sugar, woollen goods, and coal. It is a very remarkable feature of the trade of India that bullion and specie, chiefly in the form of silver, are regularly imported to such an amount that the value, even after deducting that of the exports under this head, is on an average equal to at least a fifth of that of all other imports. As a whole, the trade of India is a striking example of the exchange of agricultural produce for manufactured articles and minerals. Among the **countries** trading with India the United Kingdom takes the first place, supplying about two-thirds of the value of the imports, and receiving about 30 per cent. of the value of the exports. China, which takes most of the opium, ranks second under both heads. In the **recent history** of Indian commerce the most noteworthy feature with regard to the commodities has been a steady rise in the quantities of nearly all the leading articles of export and import. The principal exception is in the export of opium, which shows a great decline. Under the head of imports the rise has been most marked in sugar. With regard to the countries with which the commerce is carried on, the United Kingdom maintains its position pretty well in the supply of the imports, but the percentage of the exports received by it has greatly declined since 1870, that of France, Italy, Austria-Hungary, Egypt, and other countries steadily rising meanwhile. This is without doubt due to the fact that articles shipped through the Suez Canal (p. 251) are sent in increasing proportion direct to the countries mentioned instead of being sent first to England, as formerly, in order to be re-exported thence (79*g*).

204. Chief Inland Centres of Trade.—Patna, in Bengal; Benares, Allahabad, Cawnpore, Agra, Bareilly, in the United Provinces; Lucknow, in Oudh; Delhi, Lahore, Amritsar,

Patna	135,000	Bareilly	130,000
Benares	210,000	Lucknow	260,000
Allahabad	170,000	Delhi	230,000
Cawnpore	180,000	Lahore	230,000
Agra	190,000	Amritsar	150,000

in the Punjab; Ahmadabad, in Gujarat; Baroda, in the state of that name; Nágpur, in the Central Provinces; Haidarabad, in the Nizam's Dominion; Mysore and Bangalore, in Mysore; Trichinopoly and Tanjore, in Madras.

204*a*. **Seaports.**—The foreign sea-borne commerce of India proper (exclusive of Burma) is almost confined to four seaports: Calcutta, Bombay, Madras, and Karáchi (Kurrachee), and more than 80 per cent. of the whole falls to the share of the first two.

204*b*. The explanation of this is to be found in the character of the physical features. The coast-line on the east, apart from the delta of the Ganges, and on the north-west is without natural harbours suited for modern vessels, and offers great obstacles to the creation of artificial harbours. Even the minutely indented west coast below the Western Gháts has most of the inlets blocked by bars. Moreover, the Western and Eastern Gháts present obstacles to communication with the interior. *Hence the most is made* of such favourable circumstances as exist, as at the excellent natural harbour of Bombay (198*c*). On that coast there is no other first-rate natural harbour except that of Goa, and though this port is now also connected with the interior by rail its development has been retarded by the fact that it is not a British possession (197). On the east coast there is no natural harbour at all, and hence the most has been made of the point at which the British first established themselves here—Madras.

204*c*. Calcutta, Bombay, and Madras are respectively the capitals of the three presidencies, or great governmental divisions of India, and Calcutta is *the seat of the general* government. Calcutta *stands on the Húgli* (*Hooghly*), *an arm* of the delta of the Ganges. Bombay *stands on one of the finest* natural harbours of the west coast. Madras stands on the south-east coast, which does not possess, or did not possess till recently, a single safe harbour or navigable river-mouth. Ships anchor off the shore at several roadsteads, and goods and

Ahmadabad	185,000	Trichinopoly	105,000
Baroda	105,000	Tanjore	60,000
Nágpur	130,000	Calcutta (with suburbs)	1,300,000
Haidarabad	450,000	Madras	510,000
Mysore	70,000	Bombay	775,000
Bangalore	160,000	Karáchi	115,000

passengers have generally to be landed in flat boats through surf. At Madras a harbour was nearly completed in 1881, when it was in great part destroyed by one of those irresistible hurricanes by which both sides of India are liable to be swept, especially at the change of the monsoons (May and October). A new harbour was, however, completed in 1895, but even this is inadequate.

204*d*. The voyage from Madras to Europe or the reverse is considerably lengthened by the necessity of passing round the island of Ceylon, which is nearly connected with the mainland by a string of islands and a shallow bank known as Adam's Bridge. Only one channel, called the Pámbam (Paumben) Passage, across this "bridge" has been sufficiently deepened to allow of its being used by good-sized coasters, and though dredging is still going on, it is doubtful whether it can ever be made navigable for large ocean-going vessels.[1]

204*e*. The minor Indian seaports are Chittagong, on the north-east side of the Bay of Bengal; Cocanáda, at the end of one of the canals of the delta of the Godávari; and Tuticorin, in southern Madras, on the Gulf of Manar.

205. The **landward foreign trade** of India has a total value of from four to five millions sterling each way, including the trade with Kashmír and the Shan States in Upper Burma. The trade through the western passes, which makes up about 20 per cent. of the whole landward trade, has already been considered.

206. **Kashmír** is the westernmost of the states traversed by the Himalayas. The ruler is a maharajah, who is subject, however, to British control. It is, for the most part, composed of lofty mountains, but includes the lovely valley of the same name lying, at the height of rather more than 5000 feet, in a latitude corresponding to that of northern Morocco. Steps have recently been taken by the government of the state to encourage immigration from India. Srínagar, on the Jehlam in this valley, is the largest town in the state and the centre of trade, the whole volume of which is also equal to about 20 per cent.

Srínagar 125,000

[1] A scheme is now (1904) being advocated for establishing railway communication between India and Ceylon by this route.

of the landward trade of India. The chief articles of import into India from or through Kashmír are shawl-wool; charas, an intoxicating drug made from hemp; borax, and the precious metals. The exports, as in the case of all the other frontier states, include both European and Indian products.

207. The native state of **Nepál**, the populous parts of which lie south of the main range of the Himalayas, and have many routes to the Indian plains, absorbs more than half the landward foreign trade of India. The chief imports therefrom are food-grains, oil-seeds, timber, cattle, and horns. From Khátmándu, the capital, two routes branch over the central range of the Himalayas, and by means of these a small trade is carried on with Tibet.

208. With **Sikkim**, **Bhután**, and the north-eastern states beyond the frontier of Bengal and Assam the trade is very trifling, but hope is entertained of developing a considerable trade with Tibet by a series of easy passes known to exist in Sikkim. These passes, about 13,000, 14,000, and 15,000 feet high respectively, would afford communication with the most productive part of Tibet (232), and on the Indian side are within a short distance of the railway to Darjíling.

209. **CEYLON.**—This island, a British Crown colony, about half the size of England, is mountainous in the south, a level wooded plain in the north. The south-west, which is the most populous region, gets the benefit of rain from both the south-west and north-east monsoon, and the latter monsoon brings a fairly abundant rainfall to the north-east of the island, but the north-western plains and the coast-strip on the south-east are both somewhat arid. In the south-west the plains and lower hill terraces are covered with coco-nut plantations and rice-fields. belonging mainly to the natives (Sinhalese), and the mountain terraces (below 5000 feet) are occupied by the **tea** (35), **coffee**, **cacao**, **rubber**, and **cinchona** plantations of Europeans. Cinnamon also is still an important product, as it has been for thousands of years. The **labourers** on these plantations are mainly immigrants from southern India, most of whom come only for the season, though some of them have formed permanent settlements for themselves on the dreary eastern coast. The island

Khátmándu . . . 50.000

has many minerals, but at present a very pure **graphite** (64), containing more than 90 per cent. of carbon, is the only one of commercial importance. The principal exports are the plantation products above mentioned, coco-nut oil, graphite, and cinnamon. Pearl-fisheries are carried on in the Gulf of Manar, but they are uncertain. In 1903 they proved successful after a period of failure lasting twelve years. The principal imports are rice (from India), coal (from England and India), and manufactured articles (principally from England).

The chief seaports of the island are Colombo and Point de Galle. Colombo is connected by rail with the European plantations, and is now the chief port of call frequented by ocean-steamers, and has been provided with an excellent artificial harbour. Point de Galle, or Galle, was more conveniently situated for a calling station when the Cape route was the sole route to Calcutta and Rangoon. On the east coast there is a fine harbour at Trincomali, but its situation at a distance from the chief seats of production causes it to be of little value for trade.

210. **INDO-CHINA**, also called the Eastern Peninsula and Further India, is the peninsula between India and China. It is now divided between Great Britain, Siam, and France, besides a few small native states, chiefly in the minor peninsula called the Malay Peninsula. The British territory is made up of the former empire of Burma, which, as regards administration, forms part of British India, together with the Straits Settlements and protectorates; the French (197), of Lower Cochin-China, Cambodia, Annam, and Tong-king. The northern part of the interior, which is very mountainous, is occupied by Shans, partly belonging to British and partly to Siamese and French territory, but practically in a large measure independent.

211. **Surface and Communications.**—The mountainous character of a large part of the country, the existence of numerous extensive swamps in the more level tracts of the interior, and the defectiveness of the communications go a long way to account for the low density of population (under 50 to the square mile, except in Tong-king, which is estimated to have a population of more than 150 to the square mile). Among other causes have

Colombo 215,000

been devastating wars, inroads of robber bands from the mountains, and other consequences of the want of strong government. Since Lower Burma has been in the hands of the British there has been a constant stream of settlers southwards and westwards, as well as of emigrants from India proper into that territory; and population, production, and commerce have rapidly increased.

211*a*. With regard to the communications of the peninsula, it is noteworthy that some of the chief **rivers** are very defective as waterways. Above the large and densely peopled delta in Tong-king the Song-koi is navigable to within the Chinese frontier; but the longest river of the peninsula, the Mekong, has its navigation greatly impeded by rapids, the lowest of which are situated to the south of the Siamese-Cambodian frontier. The Menam, in Siam, is navigable for steamers only to the confluence of the two main head-streams, which meet to the south of 16° N., and of these the eastern one is the only one navigable by boats. Timber is floated down the western branch. The Salwín, in Burma, is scarcely navigable at all except at the mouth. Of all the rivers of the peninsula the Iráwadi, the chief river of Burma, is the most important for its navigation. This river is regularly navigated by steamers as high as Bhamo, in about latitude 24° N., a distance of about 900 miles, but there the further progress of steamers is impeded by rapids. The Kyendwin or Chindwin, the chief tributary of the Iráwadi (right bank), is also navigated by boats, but is ascended with no little difficulty on account of the strength of the current, which makes it a matter of three weeks to reach a point about 250 miles up.

211*b*. Where there are no navigable rivers goods are mostly carried laboriously and expensively on the backs of elephants, oxen, ponies, and other beasts of burden, or by human porters. In some places carriage has already been cheapened by the construction of **railways**, and there are now various projects actively promoted for the extension of this means of transport. The chief railways already in existence are two starting from Rangoon, the principal port of Burma. These railways have been constructed on opposite sides of a range of mountains on the east of the Iráwadi, the one proceeding to Prome, an important town

Rangoon 300,000

on the Iráwadi, and the other past Mandalay, the **capital** of Upper Burma, higher up the Iráwadi. Saigon, the chief port of Cochin-China, has been connected by rail with Mytho, on one of the main arms of the Mekong delta, although the Saigon river is likewise connected with the larger stream by a natural navigable channel uniting these two ports. A railway running eastwards from Bangkok, the capital of Siam, to Khorat, partly through a rich alluvial plain, was opened at the end of 1900, and a northern branch to Zimme, Chiengmai, or Kiang-mai, is in progress. Hanoi (213) is connected by rail with the port of Haiphong, and a line is in progress up the Song-koi to Laokai, the limit of navigation, whence another line is being laid to Mengtse, or Mongtse, in southern China.

212. **Products and Commerce of the Main Divisions** (exclusive of the Malay Peninsula).—In Burma, Siam, and Cochin-China rice is the principal product and the principal export. In Burma, teak, the valuable shipbuilding timber, chiefly derived from the mountain slopes of Upper Burma, is the second in value among the exports. Among the other products of Burma are cutch (51), rubber, petroleum, coal, gold, jade, and rubies. **Petroleum** has long been a commercial product of some importance both in Lower and Upper Burma. It is obtained both from islands on the west coast and in the Iráwadi valley. **Three coalfields** are known in Upper Burma, that supplying the best coal being in the valley of the Kyendwin. Gold, jade, and rubies are all products of the northern parts of Upper Burma. The Burmese **jade** forms the chief supply of that mineral in the markets of China and Japan, where it is of great value. The **ruby-mines** of Burma (at Mogok, a high valley to the east of the Iráwadi, about half-way between Mandalay and Bhamo) furnish the only rubies of the finest colour to be found anywhere. From **Siam**, also, teak is an important export, and oil-seeds (47) are among the chief products both of Siam and the French posses sions. The leading exports of **Tong-king** are rice and animal products, of Annam sugar, cinnamon, and "false gambier." The trade of Burma is mainly with the United Kingdom, India, and Ceylon. Only a small portion of that of the other

Mandalay	140,000	Zimme, or Chiengmai .	(?) 100,000
Bangkok	630,000		

great divisions of Indo-China is carried on with European countries, China and other eastern countries having the largest share.

213. **Seaports.**—(1.) **Burma.**—Rangoon stands on the Rangoon River, an arm of the Iráwadi delta, but one which is not navigable directly to the Iráwadi itself, although in the rains there is a navigable connection with that river. Two-thirds in value of the exports of Burma are shipped from this port. The minor ports of Burma are Bassein, on a western arm of the Iráwadi delta; Akyab, on the Bay of Bengal, the port of the division of Arakan; Maulmain, at the mouth of the Salwín, the chief port of the Tenasserim division; Mergui and Tavoy, still smaller ports on the still narrower parts of Tenasserim further south. Maulmain, like Rangoon, can be kept open for large vessels, but much dredging is necessary at the former port to keep the approach free from obstructions. (2.) **Siam.**—Bangkok, the capital, on the Menam. A bar at the mouth of the Menam prevents this port from being reached by ocean-steamers. (3.) **Annam.**—The chief harbour and port is the Bay of Turan, which lies about half a degree to the south of Huë, the capital of the province. (4.) **Tong-king.**—The chief seaport of this territory is Haifong, or Haiphong, on the delta of the Song-koi, a port created at great expense on former rice-swamps. Hanoi, near the head of the delta of the Song-koi, accessible to smaller sea-going vessels, is the capital, not only of Tong-king, but, since the beginning of 1902, of the whole of French Indo-China. Hongai, in the north-east of Tong-king, exports fair coal.

214. **The Malay Peninsula** is the name of that part of Indo-China which projects south-eastwards nearly to the equator. It is partly under British rule, partly divided among a number of small states. The states in the north acknowledge a certain allegiance to Siam, but those in the southern half are more or less under British influence. The island of Singapore in the extreme south, the small territory of Malacca on the west coast, and the island of Penang, with one or two smaller islands and the patch of mainland called Province Wellesley further north,

Maulmain	60,000	Hanoi	150,000
Huë	50,000		

form the British Crown colony of the Straits Settlements. The remainder of the peninsula is occupied by five states under British protection—Perak, Selangor, and Sungei Ujong, Negri Sembilan, and Pahang, and the independent state of Johor in the extreme south, which, however, has placed itself under British control as regards its foreign relations.

214*a*. The natives of the peninsula are Malays, whence the name; but the Malays are being ousted in trade and industry by settlers from abroad of a more enterprising temperament. These are mostly Chinese and Indians, the latter mainly from southern India, and known in the peninsula as Klings.

214*b*. **Gutta-percha** and many other tropical products are obtained from the forests and plantations, but the chief export product is **tin**, for the mountains running through the peninsula and reappearing in islands further south (219) are the richest part of the world in this metal. The largest supplies of tin in the peninsula are at present obtained from Perak, in the north-west of the British region.

214*c*. **Malacca**, which was the chief seaport from the time of the Portuguese discovery of the seaway to the east at the end of the fifteenth century till the nineteenth century, has a harbour unsuited to modern ships, and has been eclipsed by the modern ports of Singapore, Penang, Port Swettenham, Port Weld, and Teluk Anson. Singapore, founded in 1819, on the island of that name, besides being a great coaling station, is one of the most important distributing centres in eastern waters, receiving commodities from all the surrounding countries to despatch them again in other directions. Here, as well as in Province Wellesley opposite Penang, are great tin-smelting works.

215. **THE EASTERN, OR MALAY, ARCHIPELAGO** embraces all the islands in the south-east of Asia, with the exception of those belonging to China and Japan, as well as of New Guinea, and the islands immediately adjacent. The islands are for the most part in the possession of **European powers**, and the greater number belong to the Dutch. To the Dutch belong the great Sunda Islands of Sumatra, Java, and Celebes, with the greater part of Borneo; all the Lesser Sunda Islands, except

Singapore (island) . . 300,000

the north-east of Timor, which is Portuguese; and theirs also are the Moluccas which lie between Celebes and New Guinea. In point of production and commerce **Java** and the adjacent smaller island of Madura are the most important of the whole group. The possession of a rich volcanic and alluvial soil, together with facilities for irrigation, gives it great natural advantages. These have been turned to excellent account under the efficient system of government pursued by the Dutch, so that these two islands, though only about equal in area to England exclusive of Wales, and thus containing less than one-fifteenth of the land belonging to the whole archipelago, support more than half the population of the group. **Coffee** is the chief plantation product, but **tea, cinchona**, sugar-cane, and cacao are rising in importance.

215*a*. Batavia, on the north coast in the west of Java, is the capital of all the Dutch possessions in the East, and has a trade similar to that of Singapore. Its harbour having become silted up, a new harbour (Tanjong Priok) has been constructed six miles away. On the hills to the south of Batavia stands the charmingly situated town of Buitenzorg, a sanatorium for Europeans, and the seat of a palace of the Governor-General of the Dutch East Indies. Surabaya is the chief port in the east of Java. It lies opposite Madura, which is separated from Java by a strait so shallow that the navigable channel is only about 17 feet deep.

216. Besides Java the only islands belonging to the Dutch that need be mentioned on account of their agricultural commercial products are Sumatra, Celebes, Bali, and the Moluccas. **Sumatra** is a large island with a backbone of mountains in the west, and an alluvial plain about 600 miles in length and from 60 to 110 miles in width on the east. This plain is, however, to a large extent marshy and thinly peopled, and the chief commercial product is coffee, obtained from the slopes of the western mountains. In the north-east, however, round Deli, the soil has proved to be admirably adapted for the cultivation of **tobacco**, which is hence rapidly extending here, and leading to the neglect of this crop in other parts of the Dutch East Indies. The chief ports of Sumatra are Padang and Benkulen on the

Batavia 140,000

west coast, and Palembang on a navigable river traversing the eastern plains.

217. The surplus products of **Celebes** are obtained mainly from the peninsula of Menado in the north-east, where there is a rich volcanic soil, producing **coffee** and now also **cacao**. A considerable quantity of coffee is also produced in Bali. Macassar, in the south-west of Celebes, has a fine roadstead, and on that account, as well as because of the other advantages of its situation, is a place of great commercial importance.

218. **The Moluccas**, or **Spice Islands**, are still noted for the spices, especially cloves and nutmegs, to which they owe their name. **Cloves** are chiefly cultivated in Amboina, and **nutmegs** in the Banda Islands, to which these two products were at one time absolutely restricted. Both Amboina and the Banda group lie to the south of Ceram. The small islands of Ternate and Tidor, to the west of Halmahera or Jilolo, were each formerly the seat of a powerful sultan, and Ternate is still the centre of local trade in these eastern waters.

219. Besides agricultural produce the Dutch East Indies are of commercial importance from their **mineral wealth**. So far the **tin** of the islands of Banka and Billiton, which form the continuation of the tin-bearing region of the Malay Peninsula, is the only mineral that has attained any great value in commerce; but coal is very abundant, and one or two of the coalfields are now worked.

220. The whole of **northern Borneo** is now **under British protection**. It is made up of a section in the north-east subject to the British North Borneo Company; another, to the south-west, to the native sultan of Brunei; and a third, Saráwak, still further to the south-west, to a raja of British family. In British North Borneo there is, besides coal, a **goldfield**, which is approached by a navigable river; but the chief articles of commercial value at present are tobacco and jungle produce—rattans (46), gutta-percha, camphor, rubber, &c., besides timber. Cultivation is, however, receiving attention. The soil is well suited to the growth of that valuable kind of **tobacco** used for cigar-wrappers. Sago plantations have also been formed, and encouragement is offered by the government for the establishment of cotton plantations. There is an admirable natural

harbour at Sandakan on the east coast, with 26 feet of water on the bar at the lowest spring-tides, and the climate is said to be healthy. **Saráwak** is said to furnish more than half the total **sago** produce of the world.

The small island of **Labuan**, to the west of the native state of Brunei, is a British Crown colony, now administered by the governor of the Straits Settlements. It has a good port and coal deposits, which, however, cannot apparently be worked at a profit.

221. The **Philippine Islands**, along with the island of Paláwan and the Sulu Archipelago, formerly Spanish, have belonged to the United States since 1898. The great bulk of the population of these islands inhabit Luzon, which is accordingly the only island of great commercial importance. The chief commercial products are **Manila hemp (44), sugar, tobacco and cigars, and copra.** The commerce in these articles is not as yet promoted to any great extent by railways, but a line starting from Manila, the capital and chief seaport of the group, at the head of a bay on the south-west of Luzon, runs north-west through the chief hemp and sugar districts to another bay on the west side. Chinese immigration and industry have added greatly to the productiveness of the colony in recent years, but native resistance to foreign rule is still an obstacle to further development.

222. **CHINA.**—This vast country, proclaimed a republic on February 12, 1912, is the only part of the mainland of Asia besides India and Tongking with a dense population. Trustworthy returns as to the population are wanting, but there can be no doubt of the general fact that the most extensive region in which the density is above the average of the whole is the great plain in the east, which stretches from the mountains in the north of Peking to those south of the Yangtse-kiang. This plain thus extends, roughly speaking, through ten degrees of latitude, from about 30° to 40° N., and its greatest width is about the parallel of 35°. It reaches everywhere to the coast except in the province of Shantung—that is, "the Eastern Mountains"—the province which juts out in the peninsula between the Yellow Sea and the Gulf of Chili or Pechili.

223. Another region of high density is in the south-east,

Manila	300,000

forming the province of Kwangtung, which contains the great delta of the Si-kiang or West River. In the west there is a third region of exceptionally high density of population in the east of the province of Sechwan and the north of Yünnan, where, besides great mineral wealth, there is a peculiar red soil of extreme fertility. West of the great plain China is for the most part elevated and to a large extent mountainous, but even the elevated regions are in some places capable of supporting a numerous population. This is so, for example, in the region of the red soil just referred to, and in extensive areas of the northern half of China, which is covered with a fertile yellow soil known as lœss.

224. **Communications** throughout the great plain of China are naturally easy. **Inland navigation** is carried on both by rivers and canals, and one great canal, 700 miles long, runs through nearly the whole length of the plain. Commencing at Hangchau (226*b*), it crosses both that river and the Hwang-ho, and terminates at Tientsin, the inland port of Peking. Not being kept in proper repair, however, this canal is no longer navigable throughout its length. Navigable rivers facilitate the communication between the great plain and the province of Kwangtung.

224*a*. Between the east and the west of China, however, communication is not so easy. Three great rivers, the Hwang-ho or Yellow River in the north, the Yangtse-kiang in the middle, and Si-kiang or West River in the south, cross the country from west to east, but only the second of these is of great service for navigation. The **Hwang-ho**, well called China's sorrow, is too rapid, too much obstructed by shallows, and too shifting in its course to be easily navigated. Its shallowness is in a large measure due to the fact that the abundant waters which it brings down from the mountains are drunk up by the porous lœss over which it flows in the plains. In this part of its course it is also liable to cause terrible destruction by sudden changes of its bed. At certain periods it has entered the sea by a north-easterly course leading into the Gulf of Pechili, which contains its present mouth; at others by a south-easterly course into the Yellow Sea.

224*b*. The **Yangtse-kiang** is an admirable watercourse as far

as the town of **Ichang** in about 111½° E.—that is, for about a thousand miles from its mouth. Thus far steamers can ascend, and even ocean-going steamers can reach as high as Hankau (Hankow), and there get loaded with tea and other products for Europe and America. Beyond Ichang, however, a series of difficult rapids impede the navigation for about four hundred miles; and as the mountain tracks between Ichang and Chung-king, the great river-port of Sechwan, are likewise extremely difficult, that rich province is in a large measure shut off from communication with the great eastern plain. This obstruction to communication is all the more serious from the fact that the provinces thus shut off from one another are mutually deficient in commodities which the others supply. Rich as the soil of Sechwan is, it is not suited to any great extent for cotton, which in China is mainly grown on the lœss (223). On the other hand, Sechwan is one of the richest of all Chinese provinces in silk, and both it and Yünnan are well adapted for opium. **Eastern Sechwan and northern Yünnan**, moreover, might be described as **one enormous coalfield**, and yet the coal used in the river-steamers at Ichang is imported from Japan. Salt, copper, and the precious metals are also among the products that this part of western China yields in abundance.

224*c*. The third of the great rivers above mentioned, the Si-kiang, is navigable more or less for the greater part of its course, but rapids impede the navigation in many places.

225. **Agriculture** is pursued in China with great industry and skill, and the chief products of the country are agricultural. Manufactures are almost entirely domestic, and the raw materials are mainly produced in the country. Silks, cottons, and China-grass (44) fabrics, the last chiefly for summer wear, are largely made. Woollen garments are little worn, except by the rich. In winter the well-to-do classes of northern China protect themselves against cold by wearing furs, but cotton garments, padded and quilted, form the general winter clothing.

226. **Foreign Commerce.**—Raw silk, silk manufactures, tea, beans, and bean-cake are the chief **exports**, and the principal **imports** are cotton and other manufactures, opium, rice, sugar, and metals. The **recent history** of Chinese commerce shows several noteworthy features. On the export side there has been

a great decrease in the amount of tea exported by sea, but this has been partly balanced by a great rise in the amount exported overland, chiefly by way of Maimachin and Kiakhta (183) to Russia. The exports of silk-refuse (which is now manufactured in Europe into silk fabrics), of silk goods, and of straw-braid (which is now an export of considerable value) have all rapidly increased in amount in recent years. Of the raw silk exported there has been since 1894 a rapidly increasing proportion of silk reeled by means of steam filatures. On the import side there has been a decline on the whole in the amount of Indian opium imported, but there has been a pretty steady rise in the amount of the coal import, and a rapid rise in that of petroleum.

226*a*. From the table at the end of the book it appears that the foreign commerce of China is very small in proportion to the population. For this there are several reasons. First, China is a country of vast size, with very diverse climates and products. In area it is equal to about the half of Europe, if we leave out of account the almost uninhabited parts of Russia and Scandinavia. As it extends into the tropics, the variety of its natural products is even greater than in Europe; so that the deficiencies of one part of the country can be supplied by the products of other parts, and the trade between different provinces may be compared to the trade between different countries of smaller extent. A second reason for the small amount of the foreign commerce of China is that the Chinese government in its intercourse with foreign countries still shows a great deal of jealousy of foreign encroachment. Foreign merchants and foreign shipping are restricted to certain ports, known as **treaty ports**, of which those opened before 1895 are here enumerated approximately in the order of their importance, in proportion to the amount of commerce carried on at each:—Shanghai, Hankow (Hankau), Canton, Chifu, Swatau (Swatow),

Shanghai	(?) 350,000
Hankow	850,000
With the adjacent Hanyang on the opposite bank of the Han, and Wuchang on the opposite bank of the Yangtse, from 1,000,000 to 2,000,000.	
Canton	(?) 1,600,000
Chifu	60,000

Amoy, Chinkiang, Ningpo, Fuchow (Fuchau), Kiu-kiang, Niu-chwang (in Manchuria), Tientsin, Wuhu; Kiungchau, Pakhoi, Wenchau. Chungking is open to foreign merchants, but not to foreign shipping. With regard to this port as well as Ichang see also **224b**. Of the ports mentioned, Chinkiang, Wuhu, Kiu-kiang, Hankow, Chungking, and Ichang are all on the Yangtse-kiang.

226*b*. By far the most important of the treaty ports, especially for imports, is Shanghai, the great outlet of the Yangtse valley, and a great entrepôt for central and northern China. It is situated not on the Yangtse itself, but on a small tributary called the Wusung, or Hwang-pu. Canton is the principal treaty-port of southern China, and the most populous city in the empire. It is situated at the head of the extremely fertile and populous delta of the Si-kiang, and of the Chu-kiang, or Pearl River, the chief arm of that delta. Of the interior ports by far the most important is Hankow. It lies at the head of navigation for large steamers about the middle of the very populous plain of the middle Yangtse, and at the meeting-place of four waterways leading respectively south-east (a lower reach of the Yangtse) south-west (an upper reach of the Yangtse), north-west (the Han), and west (a canal joining the Han to a higher reach of the Yangtse). At the close of the war with Japan in 1895 three additional ports were opened to foreign commerce—Hangchau, situated just west of the gulf of that name (south of the estuary of the Yangtse-kiang), Suchau, a great silk-weaving centre, 70 miles west of Shanghai, and Shashi, an important river-port on the Yangtse-kiang, between Hankau and Ichang. Several minor ports have been opened later. Hangchau is not a port open to sea-going ships, inasmuch as it is cut off by embankments from the adjoining gulf in order to protect it from the high and violent tides, known as bores, to which that gulf is exposed.

226*c*. A large part of the foreign, and especially the British, trade of China is centred at the British Crown colony of **Hong-**

Amoy	95,000	Wenchau	80,000
Chinkiang	160,000	Chungking	350,000
Ningpo	255,000	Hangchau	(?) 500,000
Fuchau	625,000	Suchau	500,000
Tientsin	(?) 1,000,000	Shashi, or Shasze	(?) 100,000
Wuhu	105,000		

kong, an island situated immediately to the north of the entrance to the estuary of the Si-kiang. It is the great entrepôt for all China south of the Yangtse valley. More than one-third of the Chinese imports in value enter the country from this colony, and the great bulk of the remainder are derived directly from India and the United Kingdom. This colony also receives about one-fourth of the value of the Chinese exports. **Macao**, at the south of the same estuary, belongs to the Portuguese. In 1897 **Kiauchou Bay**, on the south side of the Shantung peninsula, was leased to Germany, and in 1898 the harbour of **Wei-hai-wei**, on the north side of the same peninsula, was leased to Great Britain. In December 1905 the Liautung Peninsula with the fortress of **Port Arthur** was leased to Japan.

226*d*. The chief obstacle to the development of the foreign commerce of China is the deficiency of the great modern means of internal communication and of production. Both have hitherto been regarded by the Chinese authorities with noted dislike, chiefly, it would appear, from dread, partly from contempt, of the foreigner. In recent years signs of change in this respect have not been wanting The **electric telegraph** already connects the remotest inland cities with the capital. The first railway in China was a short line from Shanghai to its outpost Wusung, opened in 1876, but it was purchased by the viceroy of the province and torn up in the following year. Afterwards a railway was laid from the Kaiping collieries, east of Peking, to the mouth of the Pei-ho, and at a later date, from this latter point to Tientsin. The continuation of the Kaiping line north-eastwards to Manchuria was afterwards encouraged by the government for strategic purposes. In 1897 Tientsin was connected by rail with Peking, and since then further railway concessions have been granted.[1]

[1] Under these concessions Peking and Hankau were connected by railway by the opening of the bridge over the Hwang-ho on November 13, 1905. This line is now being continued on the opposite side of the Yangtse to Canton, which is already connected by rail with Kaulung, the British territory opposite Hong-kong. A northern branch from the Peking-Hankau line runs westwards to Taiyuen-fu, the capital of Shansi. Peking is now also connected with the south by a more easterly route, a continuation of the Tientsin line to Nanking, Shanghai, Hangchau, and Ningpo, with a branch to Kiauchou. Hanoi in Tongking has been connected by a French railway through Mengtse, or Mongtse, with Yünnan-fu.

227. With regard to the effect ultimately to be expected from railways in China it is important to note that China, though not as yet producing large quantities of minerals, nevertheless possesses vast stores of undeveloped mineral wealth, and above all of coal and iron. The whole area of the coalfields of China is estimated to be perhaps twenty times as great as that of all the coalfields of Europe. These coalfields exist in many places where there is already a dense population, and much of the coal is of excellent quality. The Kaiping coalfield has long been worked by European methods. Other small coalfields exist to the west of Peking. A small coalfield, containing excellent bituminous coal, lies in the west of the mountains of Shantung, and only a railway is required to supply all the ports of China with cheap coal from this source. But the great coalfields of China lie further in the interior. One of these (that of Sechwan and Yünnan) has already been referred to (223). Others occupy the province of Shansi, at the height of between 2000 and 3000 feet above sea-level. The south-east of this province forms one of the most remarkable mineral regions in the world. A deposit of anthracite (59), very thick, and capable of being worked with great ease, here extends over about 13,500 square miles, which is more than the area of all the British coalfields. Moreover, this coalfield is rich in iron ores, as well as in potter's clays. Pig iron produced at Hanyang from ores obtained near the Yangtse has already been exported even to the United States.

228. **Chief Inland Towns.**—Capital, Peking. Among the other large towns, which are very numerous, may be mentioned Singan-fu, Hsian-fu, or Sian-fu, on the Wei-ho, a tributary of the Hwang-ho, on the edge of a fertile and populous plain, and at the point where the road along the Wei-ho and Hwang-ho valleys eastwards is joined by the road leading across the pass that connects the Singan-fu plain with central China (Hankow); Chengtu-fu, capital of the province of Sechwan, situated on a level plain about 2000 square miles in extent, one of the most carefully irrigated and most productive areas in the world; Yünnan-fu, capital of the province of Yünnan; Nanking, on the

Peking	(?) 500,000	Nanking	(?) 500,000
Singan-fu	(?) 700,000	Chengtu-fu	(?) 800,000

Yangtse-kiang, on which river lie several other important **towns** already named among the treaty ports (226*a*).

229. **THE CHINESE DEPENDENCIES.**—China proper is bordered on the north-east, north, and west by various territories more or less directly under Chinese rule. **Manchuria** is the most important of these. It lies to the north-east, and is drained partly by the Liau-ho into the Gulf of Pechili, partly by the Sungari and its tributaries belonging to the basin of the Amur. The population was till recently scanty, but the southern province is being rapidly occupied by Chinese settlers, and is now in almost all essential respects a part of China proper. Among other products opium of good quality is grown. The capital of this province is Mukden, on a tributary of the Liau-ho; the chief port, Niuchwang (Newchwang), a rising treaty port. Even the northern provinces, however, have a considerable population, and have several important towns. Among these are Kirin, on the Sungari (the valley of which is now receiving many immigrants), and Tsitsihar on its tributary the Nonni. Both places can be reached by steamers. Kharbin, or Harbin, is a new town built under Russian auspices at the point where the railways originally built by Russia diverge for Vladivostok and Port Arthur respectively. Port Arthur, a naval station and arsenal, strongly re-fortified while in Russian hands (1898 to 1905), and the adjoining mercantile port of Dalny, a Russian creation renamed Tairen by the Japanese, were leased to Japan after the Russo-Japanese war of 1904–5.

230. **Mongolia**, west of Manchuria, is a tableland, occupied mainly by pastoral tribes, surrounding the desert of Gobi. Maimachin, one of the chief seats of trade between China and Russia 183), lies on its northern frontier.

231. **Chinese, or Eastern, Turkistan** occupies the basin of the Tarim, and is separated from Mongolia by part of the Chinese province of Kansu. It also is a tableland with a desert in the interior, but the oases at the base of the mountains which enclose the tableland are highly cultivated. Kashgar and Yarkand still maintain a caravan-trade with China, and they are the centres of the trade carried on across the passes of the Pamir (196).

Mukden	**(?) 300,000**	**Kirin, or Girin**	**(?) 100,000**

232. Tibet, a lofty tableland, or series of tablelands, traversed by mountains, and bounded on the south by the Himalayas, is very scantily inhabited, and most of the inhabitants are confined to the valley of the Brahmaputra (Sanpo). It is tributary to China, but pays only a slight allegiance to the Chinese Emperor. The actual ruler is the Grand Lama, the head of a peculiar form of the Buddhist religion. He resides at Lhassa, a town about 12,000 feet above sea-level. The country produces fine wool, including cashmere wool, and if communication were free, a large trade might be developed with British India in exchange for Indian tea and various British, Indian, and other manufactures. In 1894 foreigners were allowed to advance as far as Yatung, to the north of the Himalayan state of Sikkim, for trade, but the trade with British India is nevertheless still small, and tea, which is regarded almost as a necessary of life by the natives, is still introduced mainly by difficult mountain routes from China, although the tea so imported is of poor quality. Lhassa was entered by a British force on the 3rd of August 1904, the first occasion on which Europeans saw the city since 1846. What effect this expedition may have on the commercial and other relations of Tibet with the rest of the world is as yet uncertain.

233. **KOREA**, the mountainous peninsula between the Yellow Sea and the Sea of Japan, was till 1895 a loose dependency of China. It then became independent, but in 1905 it passed under the influence of Japan, to which it was annexed in August 1910, under the name of Chosen. The chief open ports are: Chemulpo on the west coast, Fusan on the south-east, and Wönsan, Gensan, or Yuensan, on Broughton Bay on the east coast. Chemulpo is the port of the capital, Seoul, or Hanyang. Gold, in dust and bars, beans, and rice are the chief exports. Among other exports is ginseng, a drug highly valued by the Chinese. The imports include cotton goods, machinery, kerosene, grass-cloth, and sugar.

234. **JAPAN.**—This is the European name of an insular kingdom in the east of Asia. The native name is Nippon, a name also applied to the main island of the group (Hondo, or Honshiu). Adjacent to Honshiu on the south and south-east

Seoul 280,000

are Kiushiu and Shikoku, and these three islands contain the great bulk of the Japanese population. North of the Strait of Tsugaru lies the large island of Yezo, which also belongs to the Japanese Empire; and to this empire belong likewise the Kurile Islands, between Yezo and Kamchatka; the southern half of Sakhalin; the Riu-kiu (Lu-chu) Islands and Formosa, south-west of Kiushiu; and the Bonin Islands to the south-east.

235. Many circumstances suggest a comparison of this kingdom with the British Isles, but the points of contrast are even more noteworthy than those of resemblance. In area Japan is about one-fourth larger than the British Isles, but the two kingdoms are more nearly equal in population, and they are like one another in being insular, in being situated near the more populous side of the neighbouring continents, and in being rich in minerals. On the other hand, they contrast with one another in the character of their surface, climate, and principal productions. The entire group of the Japanese islands is highly volcanic, and the surface very mountainous and irregular. This greatly hinders internal communication; so that till 1892, after twenty years of more or less active railway construction, there were only two railways connecting the opposite sides of the main island (comp. 79*e*). Moreover, the railways proceeding inland have great windings, which greatly increase the distance by rail between important places. The direct distance from Tokyo, the present capital, to Kyoto, the old capital, is about 230 miles (about as far as from London to Durham); the distance by rail is 338 miles.

236. Agricultural Products.—The irregular character of the surface also greatly limits the productive area. Less than 30 per cent. of the surface is reckoned as productive, and less than one-eighth of Japan proper is devoted to agriculture, including pasture (73). But the nature of the **climate** makes up for this disadvantage. There is, indeed, a much greater difference between the cold of winter and the heat of summer than in the British Isles (6*a*), but the heavy rains of the warm summers (6*b*) enable **rice** (39) and other tropical products to be grown, so that a dense population can be maintained on a small area. **Floods**, however, not infrequently cause immense destruction to crops, roads, and buildings. Besides rice, wheat, barley, and beans, **tea**, **silk**, and **lacquer** are among the more important agricul-

tural products of Japan. Camphor is a valuable product of the very extensive forests. There are few of the larger domestic animals. Sheep do not thrive. Cattle are employed only as beasts of draught and burden. Japan is thus altogether without, or very poorly supplied with, some important products. It has no native wool, no milk, butter, or cheese, and has only a comparatively small supply of leather.

237. **Minerals.**—The mineral wealth needs development. The coal production (in the west of Kiushiu and the west of Yezo) is rapidly increasing (59); so also is that of **copper. Antimony** and **silver** are also among the Japanese exports. Petroleum is produced in the west of Honshiu, and sulphur in the east of Yezo. Iron ore abounds, but not for the most part in convenient situations.

238. **Progress.**—Since the great revolution of 1868 the Japanese have been making every effort to get abreast of the most advanced European countries as regards the methods of production and transport. The first railway was opened in June 1872. Now, in spite of the difficulties placed in the way of their construction by the mountainous character of the country, there are several thousands of miles of railway. The first native steamship company was established in 1874. Now magnificent Japanese vessels are to be seen in all waters, and some of these have been built in Japan. **Machine cotton-spinning factories** have been established with great success, chiefly since 1882 (65). **Paper-mills** worked by machinery have also been erected. Japanese machine-made **matches** are now supplanting Swedish matches in China, and even in Siam and the Straits Settlements. Great iron and steel works have just been started by the Government at Wakamatsu, at the western entrance of the straits separating the island Kiushiu from the south-west of Honshiu, but the ore is nearly all obtained from the Chinese province of Hupe. See also 234, 235.

239. **Foreign Commerce.**—The recent rapid growth of manufacturing and mining industry has had a remarkable effect on the foreign commerce. Formerly the leading imports were textile manufactures, but now the chief import is raw cotton,[1]

[1] The import of raw cotton increased from about 9,000,000 lbs. in 1886 to over 500,000,000 lbs. in 1905, 1907, and 1909.

and the imports of manufactured iron and machinery are increasing much more rapidly than those of textile manufactures. The imports of grain and flour for the industrial population have also become very large. Among the exports silk is still the most important, as it has been for many years, and it is rapidly increasing, but the next in importance is now silk manufactures, instead of tea, as it used to be, and the value of the tea export is now nearly equalled by that of coal, the export of which is steadily growing. Among other important exports are rice, cotton-manufactures, matches, lacquer-ware, paper, &c. Great Britain, India, China, the United States, and Germany supply most of the imports. The United States are the largest market for Japanese silk and tea, and take the largest share of the exports, China and France coming next.

240. Formerly restrictions were placed on the commerce of Japan with foreign countries and the settlement of foreigners in the empire similar to those which are enforced in China and Korea; but in 1899 the whole country was thrown open to foreigners. The most important seaports are Yokohama, with the adjacent Kanagawa (the residence of the consuls), on the Bay of Tokyo; Kobe (including the adjoining Hyogo), on a bay to the south of Kyoto, with which it is connected by rail; and Nagasaki, on the south-west coast of the island of Kiushiu. All these have deep and spacious natural harbours. Nagasaki, being in the vicinity of coal-mines, is now much frequented as a coaling-station, and has a large export of coal. It has a large shipbuilding yard, with machine-shops, boiler-works, and foundries. Deshima, an artificial islet close to Nagasaki, was the seat of a Dutch factory or trading-station as far back as 1641. Tokyo itself is also a seaport, but its harbour is shallow. The same defect impedes the growth of foreign commerce at Ozaka, which lies on the same bay as Kobe, and is frequented by great numbers of native craft. Niigata, the principal port on the west coast, has its shipping stopped for half the year by the strong surf that beats along the whole of this flat and dangerous coast during the prevalence of the winter monsoon,

Yokohama	400,000	Ozaka	1,200,000
Koke	380,000	Niigata	60,000
Nagasaki	180,000		

which blows from the north-west across the Sea of Japan from an area of high pressure in the north-east of Asia.

240*a*. Hakodate, on Tsugaru Strait, is the chief port of Yezo, and has only a small foreign trade. This large island, though said to have 25 per cent. of its surface fit for agriculture, has a severe climate, and at present has only a scanty population on the coast, chiefly engaged in fishing (salmon, herring, cod), though there is now, as already intimated, also a mining population. The island is now officially known as the Hokkaido, or Northern Colony, and the Japanese Government is endeavouring to develop its resources.

240*b*. Formosa is traversed from north to south by a range of mountains which, along with the eastern plain, are inhabited by a semi-barbarous people. The inhabitants of the western plain are mainly of Chinese origin, but not of a high type. The chief exports are tea and camphor, the latter a government monopoly. The capital is Taipei, near the northern end, connected by rail with the port of Kilung, or Kelung, which has an excellent anchorage, and near which are mines of good soft coal capable of being mixed with Welsh coal for use on steamers. Improvements are projected on the harbours of Anping and Takau on the west coast to promote the sugar industry, which is carried on in the neighbourhood.

241. The capital of the country is Tokyo. The chief inland towns are Kyoto and Nagoya, the latter on the railway connecting Tokyo with Kyoto. Though Nagoya appears on the map to be a seaport, being situated at the head of Owari Bay, it is in reality inaccessible to ships through the silting up of the neighbouring waters.

AFRICA.

242. This continent, though not the least populous either in respect of the absolute number of the estimated population or the average density, is that which is of least importance as regards its contribution to external commerce. This may be ascribed, among other causes (262), to natural unproductiveness

Hakodate	90,000	Kyoto	450,000
Tokyo	2,000,000	Nagoya	380,000

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arising from want of rain. Africa lies as a whole in latitudes where the atmosphere is always able to retain large quantities of vapour uncondensed. Its surface is made up mainly of plateaux with bordering mountains, so that the interior is in most parts reached only by winds that have been deprived of the greater portion of their moisture (6*b*). The only regions with fairly abundant rainfall are certain parts of the equatorial region, narrow strips on the east and south-east coast, and part of the north coast in the neighbourhood of the Atlas Mountains. The only district possessing a really high density of population is a small part of Egypt in the north-east.

NORTH AFRICA.

243. **EGYPT.**—This country is nominally a part of the Ottoman Empire, but it has an independent government, which is at present practically under the control of Great Britain.

The country extends from the mouths of the Nile to Wady Halfa in about lat. 22° N. In the east it extends to the Red Sea, and includes the peninsula of Sinai; and in the west the boundary is an indefinite line passing through the great Libyan Desert. The **habitable area**, however, is almost confined to the tracts capable of being irrigated by the waters of the Nile. These are (1) the Nile Delta, (2) a valley varying from 2 to 15 miles in width lying between deserts on both banks of the Nile, and (3) a depressed area west of the Nile, known as the Fayum, to which the waters of the river are led by an ancient canal called the Bahr Yusuf (water of Joseph). Besides these tracts there are a few oases in the desert. Hence, though the distance in a direct line from Wady Halfa to the shore of the Mediterranean is about 680 miles, equal to the distance from the Scilly Isles to the northern extremity of the Shetland Islands, the entire **area fit for cultivation is less than 9000 square miles**, or about one-half larger than Yorkshire; and on this area is crowded a population of about 10,000,000, almost wholly dependent on agriculture.

244. What enables this highly productive agriculture to be maintained is the regular annual rise of the water in the Nile, a rise now known to be due almost entirely to the summer

(monsoon) rains on the lofty mountains of Abyssinia. The river begins to rise about the 26th of June, and by the month of September it has reached the top of its banks and begins to overflow, except where restrained by artificial dykes. A normal rise at Cairo is about 25 feet; if the rise exceeds 27 feet there is danger to the embankments, and day and night these are watched by large bodies of men, ready to fortify or heighten them under the direction of engineers.

244*a*. **In Upper Egypt**, that is, from the southern frontier to Siut (Assiut), in about 27° N., the sole method of irrigation still practised is the old method of the Pharaohs. The river on rising is allowed to fill large enclosed basins on both sides, the water being run off again by sluices at the end of about seventy days. By this method of irrigation the soil is condemned to sterility for half the year, during which it is either under water or baked to a degree of hardness which makes it impossible to grow anything. By it, too, only such crops can be grown as ripen within a short period — beans, lupines, clover, millet, wheat, barley, onions.

244*b*. The more valuable crops, **cotton, maize, sugar-cane**, require a longer period to mature, and hence in Egypt demand a system of perennial irrigation; that is, a system by which water can be supplied all the year round. This system, in which high embankments are erected to confine the river in flood, and high-banked canals to conduct the water to the irrigable basins, has been practised on a large scale only since the first half of the present century, and is still confined to **Lower and Middle Egypt**—that is, to the Delta, and the region between the Delta and Siut. A portion of Middle Egypt is still irrigated on the old system.

244*c*. The full supply of water obtainable from a normal rise of the Nile is required for the area of land already under cultivation in Egypt, and famine is threatened to a greater or less extent both when the rise is exceptionally low and when it is so high as to overtop the artificial embankments and thus destroy the crops growing under their protection. The regulation of the river thus requires the constant attention of the government. Since the government of the country has been under British influence the area capable of being irrigated has

been increased, and great dams have been constructed at Aswan (Assuan) and Siut for increasing the supply of water, and thereby extending the irrigated area still further, and improving the mode of irrigation in parts already irrigated.

245. The Nile, besides being the great means of irrigation, is of importance as a waterway. It is navigable without impediment as far as Aswan, in about lat. 24° N., the "first cataract." Since the construction of the dam mentioned in the previous paragraph this cataract is artificial, and a lock has been constructed alongside to allow of the ascent and descent of vessels. The second cataract occurs at Wady Halfa, that is, on the southern frontier, but the rapids at this cataract are navigable easily enough at high water. Above the Egyptian frontier there are many other "cataracts" and obstructions to navigation (263). The Suez Canal (11*d*) lies entirely in Egyptian territory, and is joined by canals from Cairo and from Zagazig. The Mahmudieh Canal, about ten feet deep, connects Cairo with Alexandria, branching off from a point on the western of the two chief arms of the Nile in the Delta (the Rosetta mouth). In Lower Egypt there are numerous lines of railway, and one line of standard gauge (4 feet 8½ inches) ascends the Nile to Luxor, whence a line of 3 feet 6 inches gauge runs to Aswan. From Wady Halfa another line on the same gauge now runs to Khartum, the capital of the Egyptian Sudan, which, after a period of anarchy, was restored to Egypt in 1898 (263, 268).

246. **Foreign Commerce.**—Cotton and cotton-seed make up more than four-fifths of the value of the **exports** of Egypt. Among others of importance are beans, sugar, and onions. The **principal import** is cotton manufactures, and among those next in value are coal, wood, woollen manufactures, coffee, indigo, and ready-made clothing. The United Kingdom receives about half the value of the exports, and supplies nearly two-fifths of the imports. In the import trade Turkey, France, and Austria-Hungary rank next after the United Kingdom. The bulk of the foreign commerce is concentrated at Alexandria, the ancient port at the north-western extremity of the Delta. Minor ports are Rosetta and Damietta, near the mouths of the arms of the

Cairo	*650,000*	Alexandria . . .	*320,000*

Nile which take their names from these towns. Bars obstruct the mouth of the river at both places. The capital is Cairo, at the head of the Delta. Its suburb of Bulak is a busy river-port.

246*a*. Since the reconquest of the Egyptian Sudan by British and Egyptian forces in 1896–99, the whole of the upper Nile region as far as the frontier of Abyssinia and Uganda has been regarded as a joint dominion of England and Egypt. It includes river-valleys dependent like Egypt on irrigation, but higher up vast areas composed of low and in large measure swampy forest-clad plains, with an abundant rainfall and numerous streams, producing, however, at present little except ivory and rubber. The capital of the Egyptian Sudan is Khartum, at the confluence of the White and Blue Niles, which carries on a trade principally in gum from Kordofan.[1] See also 268.

247. **WESTERN MEDITERRANEAN STATES. — A.** The vast area, mainly desert, between Egypt and Tunis forms the Italian province of **Tripoli**. It includes, besides Tripoli proper, the oases of **Fezzan** (the chief of which is Murzuk), to the south of Tripoli proper, and the plateau of **Barka**, with a small strip of cultivable land east of the Gulf of Sidra. The navigation along the coast (700 or 800 miles in length) is dangerous on account of the numerous sandbanks and the want of harbours. Tripoli is the only seaport of consequence, and is the centre of a caravan-trade across the desert of Sahara. Its only important exports of local origin are alfa or esparto grass (67) and sponges. A small trade is carried on at Bengazi, the port of Barka.

248.—**B. Algeria and Tunis.**—The former has been a French colony since 1830, the latter a French protectorate since 1881. Both are traversed by parallel chains of the Great and Little

[1] Great schemes are at present under consideration with a view to extending the irrigable area of Egypt and the Egyptian Sudan by means of works both on the Blue and the White Nile. The chief project on the Blue Nile is one for the erection of a dam like that at Aswan. In the case of the White Nile, what is proposed is to ascertain the practicability of forming a new channel for the river far in the south where at present it flows through a region of swamps. At present the annual rise of the Nile in this region has hardly any effect on the river lower down. It merely leads to an annual expansion of swamps and lakes. If a new channel could be dug avoiding this region, then the rains that fall on the equatorial plains of the Nile basin would also help to swell the Nile in the lower part of its course, and thus add to the supply of water available for the irrigation of Egypt proper.

Atlas, but the principal cultivated area has a different relation to these mountains in the two dependencies. In Algeria the region best fitted for cultivation is a strip of lowland, or land at moderate elevation, between the coast and the Little Atlas, a strip known as the Tell; and the region between the Great and Little Atlas is a plateau producing little besides alfa grass. In Tunis the chief area of cultivation is a valley between the two chains of the Atlas, namely, the valley of the Mejerda, a river which regularly overflows its banks during the winter rains, irrigating and fertilising the neighbouring plains. The climate and products of both Algeria and Tunis are similar to those of southern Italy and southern Spain. In both wine is a product of growing importance and great promise (98).

248*a*. Since the occupation of Algeria by France much has been done for the development of the resources of the colony, though at a considerable annual cost to the mother-country. Thousands of miles of excellent roads have been made, and about 2000 miles of railway. Harbours have been constructed. New land has been brought under cultivation by the sinking of artesian wells (6*c*). The security now afforded is inducing an increasing number of natives (especially the Berbers or Kabyles) to change a nomadic for a settled mode of life. Whereas in 1830 Algeria was almost a waste, in 1887 the area under cultivation was already considerably greater than in Egypt. The region south of the Atlas, the Biled-ul-jerid, or Land of Dates, is occupied by nomadic Arabs. Far to the south the oases of Wargla and Golea also belong to Algeria. There are comparatively few European settlers in Algeria. Kabyles, Arabs, and Jews still compose about nine-tenths of the population. The remaining tenth is chiefly of French, Spanish, Italian, or Maltese origin.

284*b*. The **rising exports** of Algeria are wine, sheep, and wool, early potatoes (which now cover a large part of the cultivated area, and are exported mainly to France), grapes and other fruit, tobacco, and olive-oil. The export of grain (wheat and barley), which was formerly that of highest value, is now greatly diminished. In the exports to the United Kingdom from both Algeria and Tunis **alfa grass** takes the first place. The minerals of commercial importance are **iron ore**, obtained from the mines of Ain Mokhra, in the east of Algeria near the

port of Bona, and those of Benisaf in western Algeria (on the coast north of Tlemsen), phosphates from the south-east of Tunis (conveyed by a railway from Gafsa to the port of Sfax), and zinc ores from the north-west of Tunis.

The bulk of the Algerian exports go to France, those of Tunis to Italy. In spite of a preferential tariff in favour of French goods the United Kingdom still supplies a large proportion of the manufactured goods which form the chief articles of import into both regions.

248*c*. The principal ports of Algeria, in the order from west to east, are Oran, Algiers, Bougie, Philippeville (the port of Constantine), and Bona. Most of the Tunisian ports have only open roadsteads for large vessels, which have consequently to load and unload with the aid of lighters. The town of Tunis itself, the most populous town either in the protectorate of Tunis or Algeria, and the chief seat of the foreign commerce of the protectorate, is situated at the end of a very shallow lagoon, but has been made accessible to large vessels by a canal 21 feet deep. Larger ships have to load and discharge in the roadstead of Goletta, "little throat," at the narrow mouth of this lagoon. Susa, Sfax, and Cabes, on the east coast, are the ports chiefly frequented in the commerce with the interior of Africa, inasmuch as caravans that ascend the valley of the Mejerda are obstructed on their way southwards by the **shotts**, or string of shallow lakes to the south of the mountains.

249. C. Morocco is a former Mohammedan empire, the bulk of which has since 1912 been recognised as a French protectorate, though the northern portion, with the exception of a small neutral zone round Tangier, is Spanish. The surface is highly mountainous. The High Atlas traverse the country from south-west to north-east, and are connected at the north-eastern extremity with a coast range known as Er Rif. The chief permanent rivers of the country flow through the lowlands and plains in the angle between these ranges, and in that area lie also the chief towns—Morocco in the south, and Fez and Mekinez in the north. All of these lie at the base of the mountains, the western plains being extremely arid.

Oran	125,000	Tunis	170,000
Algiers, with suburbs . .	170,000	Fez	140,000

South of the Atlas, the rivers, such as the Wady Draa, are temporary, containing water in their lower courses only when the snow is melting on the mountains.

249*a*. The foreign commerce of Morocco has to contend against many obstacles. The people, who are among the most fanatical of Mohammedans, regard Christians with aversion, and even disdain. There are no railways, no wheeled carts, no navigable rivers. All goods have to be carried on the backs of animals, chiefly camels. There are only two tolerable ports opened to European trade, Tangier, on the Strait of Gibraltar, and Mogador, the port of Morocco, in the south. Among the minor ports, Rabat has a good river harbour, but obstructed by a bar; Saffi, only an open roadstead. The harbour of Tetuan, on a river entering the Mediterranean, requires to be cleared of sand. Of all the ports, Tangier, the residence of the chief representatives of foreign powers, is the most thriving. A telephone exchange exists here, and permission has lately been granted for the laying of a telegraph cable to Gibraltar.

249*b*. Such foreign commerce as does exist is mainly with England and France, and is carried on chiefly through the intervention of native Jewish merchants. Germany is making great efforts to acquire a larger proportion of the trade. The chief **exports** are maize and other grains, wool, oil, and other agricultural products; but some native manufactures, such as fez caps and leather, are exported to various parts of north Africa.

TEMPERATE SOUTH AFRICA.

250. By far the greater part of this area now belongs in some way or other to the British Empire. The British area is made up of the Union of South Africa (a new state established on the 31st of May 1910 by the union of the Cape Colony, now the Cape Province, Natal, the Orange Free State Province, and the Transvaal), together with the Bechuanaland Protectorate, Basutoland, and Rhodesia.[1] Pretoria is the seat of government of the Union, and Cape Town that of the supreme court of law and the legislature.

[1] These now have a uniform customs tariff, under which a rebate of 25 per cent. is allowed on certain classes of goods of British origin, while goods which, under the general tariff, are subject to a duty of 2½ per cent. *ad valorem*, are, if of British origin, admitted free.

251. The **CAPE PROVINCE** includes almost all the area south of the Orange River, along with Griqualand West and the former Crown colony of Bechuanaland. To it also belongs the whaling-station of Walvisch Bay, on the west coast, about one degree north of the Tropic of Capricorn. The white population is mainly of Dutch and British origin, the first settlers having come from Holland, but the bulk of the inhabitants[1] are for the most part Bantus or Kaffirs, who are chiefly found in the east, where they are multiplying very rapidly.

252. Throughout the province there is a general rise of the surface from the coast to the interior. From the south coast the ascent is made in well-marked terraces, the innermost of which form tablelands of about 3000 feet or more in height. These tablelands are known by the Hottentot name of **karroos.** The Great Karroo, which is in most parts at least 70 miles in width, lies to the south of a series of mountain ranges which traverse the interior from west to east. The edges of the tablelands and the ranges of mountains are broken by numerous gaps which have facilitated the construction of roads and railways. There is now a network of railways in the eastern half of Cape Province and of British South Africa generally—that is, in the half which is on the whole most productive both in virtue of its climate and its wealth in minerals. All the railways are on the gauge of 3 feet 6 inches. All necessarily rise to the interior by heavy gradients, amounting in many places to 1 in 35.

253. **Climate.**—The great drawback of the climate is drought. The eastern parts of the province, which are exposed during the southern summer to rain-bearing winds from the Indian Ocean, and the coast strips in the extreme south, are the only districts that receive plentiful supplies of rain.

254. **Products and Foreign Commerce.**—Before the discovery, in 1867, of diamonds at Kimberley, Griqualand West, which is now the greatest diamond-producing centre in the world, wool was the chief export. Now diamonds are the chief export derived from the colony itself, but wool is still the leading agricultural export. Among other important exports are

[1] At the census of 1904 the whites formed only about 24 per cent. of the total population.

ostrich-feathers (from domesticated birds), copper ore (from mines in the north-west connected by a tramway with the harbour of Port Nolloth), and mohair (30). The amount of this last export has risen very rapidly in recent years. In the general trade of the colony, however, gold is by far the most important, nearly all the gold of the Transvaal being exported through Cape Town. Among the products which are not exported at all, or only to a small amount, are maize, wheat, wine, and coal. The climate has been proved to be well adapted for wine-production, and the government is now endeavouring to promote this industry. At present there is only a small export of wine, often exceeded in value by the import. The coal produced in the province (chiefly at Indwe, about 200 miles inland on a branch line running about 60 miles east from the railway from East London to Aliwal North on the Orange River) is of inferior quality. The chief imports are manufactured articles and minerals (10). See also 29.

255. **Chief Towns.**—Capital, Cape Town, in the south-west. Seaports: Cape Town, where extensive harbour works are in progress; Port Elizabeth, on Algoa Bay; East London, further east. Port Elizabeth, in spite of its very inadequate harbour, is the principal port of the colony for imports, in consequence of its being situated nearer than Cape Town to the most productive agricultural, pastoral, and mining regions of South Africa. Inland towns: Grahamstown, about 30 miles inland, north-east of Port Elizabeth; Kimberley.

256. In the Transkeian Districts (including Pondoland), between the Great Kei River and Natal, the white population is very small. Here the mouth of the St. John's River forms an excellent harbour, but the geographical conditions hinder communication with a commercially productive area.

257. **BECHUANALAND** is an extensive territory, nearly twice as large as Great Britain, situated to the north of Cape Province, and to the west of the other South African territories already described. It was annexed to the British Empire in 1885. The northern portion of it now forms a British protectorate, while the southern portion (chief town, Vryburg) has been

Cape Town (with suburbs)	92,000	Kimberley	34,000
Port Elizabeth	33,000	East London	25,000

annexed to the Cape Province. The west is chiefly occupied by the Kalahari Desert, but some parts of the east are adapted for maize cultivation, as well as cattle-rearing, and contain tracts suitable for settlement by Europeans. The town of Palapye, a little to the north of the Tropic of Capricorn, the residence of the leading Bechuana chief, is the seat of government for the protectorate.

258. **NATAL** is the province lying between British Kaffraria in the south and the Portuguese territory round Delagoa Bay in the north, and separated from Basutoland and the Orange Free State Province by the highest part of the Kwathlamba or Drakenberg Mountains. As its surface rises rapidly in elevation from the coast to the interior, its climate may be said to change from sub-tropical to temperate in the same direction. Near the coast are grown sugar-cane, cotton, tea, and other tropical and sub-tropical products. Further inland are grown the temperate cereals and fruits, and sheep and cattle are reared. **Wool is the chief export**, but it is largely of external origin. Here also there is a large and rapidly increasing native population. The capital is Pietermaritzburg, situated at the height of about 2200 feet, in the interior. The chief seaport is Durban, on the natural harbour of Port Natal. From Durban a railway has been laid inland as far as Ladysmith, at the base of the Drakenberg Mountains, the place whence the road across the Van Reenen's Pass enters the Orange Free State Province. This railway is continued along the base of the mountains just named to Newcastle, a coal-mining town, and then through the northern angle of the province to join the Transvaal line from Pretoria.

258*a*. Since 1897 Natal has included Amatongaland, and after the Boer war it was extended on the north by the inclusion to some territory formerly belonging of the Transvaal. Zululand produces excellent hides, but suffers from the want of a good seaport. St. Lucia Bay, the only important indentation on the coast, is worthless as a harbour. **Amatongaland** extends northwards from Zululand to the Portuguese territory round Delagoa Bay.

259. **Basutoland, the Orange Free State Province**, and the **Transvaal** occupy tablelands of from 3500 to 5000 feet or more

in height, situated to the north of the Cape Province. They are all British possessions.[1] All produce wool, hides, and grain.

259*a*. **BASUTOLAND**, situated to the west and south of the Drakenberg Range, is the most elevated of these three colonies, having tablelands rising to 7000 feet in height. It is almost entirely inhabited by native tribes (Bechuanas). Wheat, vegetables, and other crops of the temperate zone are cultivated and partly exported to the Cape Colony.

259*b*. The **ORANGE FREE STATE**, annexed by the British in 1900, has the largest proportion of whites among all the colonies of British South Africa.[2] It is composed of typical veld country, rolling grassy plains seamed by deeply cut river-beds, nearly dry in winter. It is mainly pastoral, but has a good wheat-growing district in the extreme east, the western half of the valley of the Caledon, the so-called Conquered Territory.[3] Diamonds are mined in the south-west (Jagersfontein and Koffyfontein), and coal in the north (Kroonstad). The capital is Bloemfontein.

259*c*. The **TRANSVAAL** was also annexed in 1900. The coloured population, partly of non-African origin, is relatively larger than in the Cape Province or the Orange Free State Province.[4] The surface features are similar to those of the latter province. Apart from mining, the products here also are mainly those of the pastoral industries. Wheat is little grown, but the agricultural products include tobacco and some other crops of warmer latitudes. The wealth of the province is, however, mainly due to its gold mines. The deposits first worked were those of the De Kaap field in the east, where Barberton was founded in 1885. But the chief goldfield (the most productive in the

[1] In December 1906 a responsible government was granted to the Transvaal under a constitution which created a Legislative Assembly entirely elective and a Legislative Council to be in the first instance nominated by the Governor, but afterwards to be made elective if at any time after four years after the first meeting of the Council a law shall have been passed to that effect by both chambers of the Transvaal Legislature. The government of Swaziland is transferred from the Transvaal to the High Commissioner for South Africa.

[2] At the census of 1904 about 37 per cent.

[3] Conquered from the Basutos. The Caledon River is here the boundary between Basutoland and the Orange River Colony.

[4] At the census of 1904 the white population formed about 22 per cent. of the total.

world) is that of the Rand (Witwatersrand), a ridge about 60 miles long rising about a thousand feet above the adjacent plains. Here Johannesburg was founded in 1886, and ten years later the town and suburbs had a population exceeding 100,000. Since 1895 it has been connected by rail with all the chief ports of South Africa from Cape Town to Delagoa Bay. So rapidly has the gold industry developed here[1] that great difficulty has been encountered in obtaining the necessary labour. In 1904 provision was made for the introduction of Chinese coolies as labourers under conditions binding them to work in the mines for a fixed period. Coal is mined at Boksburg, near Johannesburg, at Middelburg, and elsewhere. The capital is Pretoria, about 35 miles north of Johannesburg.

260. **Rhodesia**, extending northwards from the eastern part of Bechuanaland to the Congo Free State, was brought by treaty within the sphere of British influence in 1888. Most of that part of it which lies south of the Zambezi, even though it reaches far within the Tropic of Capricorn, may be included in temperate South Africa, inasmuch as it embraces a large extent of tableland from 4000 to 5000 feet in height, with tracts healthy for Europeans. The higher parts of the tableland are in **Matabililand** in the south, round the Matoppo Hills, and in **Mashonaland** in the north. Within this territory gold is known to exist at many places. In 1889 a company called the British South Africa Company received from the British Crown a charter empowering it, among other things, to acquire rights of government within this region. The charter, however, expressly reserves to the Crown the right of assuming dominion in this territory if it sees fit. (See 266.) The first British settlements were made in Mashonaland, towards the north of the higher tableland, where the town of Salisbury was founded; but after a war with the Matabili in 1894, the more southerly part of this tableland was also occupied, and a British town is now rapidly growing up at Bulawayo, the old Matabili capital. The railway from Cape Town by Vryburg to this point was formally opened on November 4, 1897, and since then it has been connected by way of Salisbury and Umtali with the Portu-

[1] In 1888 the total production of gold was 208,000 ounces; in 1898, the last year before the war, it was 4,296,000 ounces; in 1910, 7,295,000 ounces.

guese port of Beira. A line running north-west from Bulawayc past the Wankie coalfield, which is said to contain coal little inferior to that of Cardiff, reaches the Zambezi[1] at the Victoria Falls, where the river, a mile wide, plunges a height of 343 feet into a narrow gorge.[2] North of the river the line now runs north-east past the mining centre of Broken Hill.

260*a*. North of the Zambezi are the two administrative divisions of North-Eastern and North-Western Rhodesia. In North-Eastern Rhodesia are copper-mines said to be very valuable, but awaiting the coming of the railway for their development. North-Western Rhodesia includes the unhealthy but very fertile district of Barotseland.

261. West Africa between the Cape Colony and lat 18° S., with the exception of Walvisch Bay (251), is now under German protection. It has at present hardly any commercial products, but has underground stores of water, and is adapted for cattle-rearing. An independent harbour has been formed at Swakopmünd, north of Walvisch Bay, and has been connected by rail with Windhoek, near which copper is known to occur.

TROPICAL AFRICA.

262. **General Characteristics.**—This is the part of the continent that yields least to commerce, and most of it affords little prospect of yielding much more in the near future. The obstacles to commercial development are of various kinds. Vast areas are desert (the Sahara in the north, the Somali deserts in the east). Elsewhere the soil is in a large measure infertile. The climate is generally malarious, above all for Europeans. Peace is preserved only over a relatively small area. There were hardly any strong native governments except in the Mohammedan kingdoms of **Sókoto**, **Gandu**, **Adamawa**, and **Bornu**, between the Lower Niger and the basin of Lake Chad. European authority was till recently mostly confined to a narrow strip of coast round the trading-stations. Worse than all else, slave-dealers (Arabs and others) frequently devastated

[1] *A section of the much talked of "Cape to Cairo" line.*

[2] A railway bridge, 650 feet long, spanning this gorge was opened in 1905.

and depopulated whole regions. The means of communication are still defective. Nearly all the great rivers have their navigation interrupted by rapids and falls. There are hardly any roads, only footpaths connecting the numerous villages. Goods are carried on the backs of animals, mostly camels or oxen, or by human porters. Over large areas (mainly in the south-east) oxen cannot live owing to the fatal bite of an insect known as the tsetse fly.

263. **River Navigation.**—Above the Wady Halfa four rapids obstruct the Nile navigation before Khartum, at the junction of the Blue and White Nile, is reached. The railway above mentioned (245) now avoids these rapids, and in 1900 the Nile above Khartum was cleared of the *sudd* or matted floating vegetation which hindered navigation below Lake Victoria Nyanza.[1]

263*a*. The lower half of the **Senegal** is navigable for gunboats, but the upper half is obstructed by numerous difficult rapids, some impassable for the greater part of the year.

263*b*. The unbroken navigation of the **Niger** basin is of much more importance than that of any other African river except the Nile, regard being had to the situation of the most productive regions belonging to it. Vessels of 600 tons can ascend for seven or eight months in the year as high as Rabba, a little above the confluence of the Benue. There navigation is wholly interrupted by a long series of rapids with a fall at their head, but the **Benue**, which traverses the southern part of the Hausa States, is navigable to about 13° E., that is, for nearly the whole of its westerly course.

263*c*. The **Congo** has nearly 1000 miles of uninterrupted navigation between the outlet of Stanley Pool, about 300 miles from its mouth, and Stanley Falls, situated just above the place where the river first crosses the equator, but on the 200 miles next below Stanley Pool numerous rapids and falls completely obstruct the navigation (265*a*). The great tributaries on the left bank all have their navigation stopped in the same way between 5° and 6° S. lat.; and the Mobangi, the chief tributary on the right bank, has difficult rapids in 4° 20′ N.

[1] The practicability of the Blue Nile as a waterway for steamers is only now (1904) being tested. A steamer has ascended as high as Sennar, but with difficulty, in consequence, it is said, of an exceptionally low Nile.

263*d*. The **Zambezi**, the only great river on the east side of the continent, not only has impassable rapids in its lower course (about the place where it turns to the south-east), but is very shallow below those rapids, and has its mouths obstructed by bars (265*c*). The Shire, the tributary on the left bank that forms the outlet of Lake Nyasa, has its navigation interrupted by a series of rapids and cataracts in the middle part of its course, where it describes a curve to the west, and even below the rapids is too shallow for boats drawing more than about 18 inches. Below the rapids navigation begins at Chiromo, at the confluence of the Ruo.

264. Europeans are now pushing their influence further inland. French authority prevails from the Senegal to the Niger, and the French colony of the Senegal now confines to a narrow strip the British settlements on the Gambia, with Fort Bathurst at the mouth of the river. A coast railway has been laid in French territory (from St. Louis, the capital, to Dakkar at Cape Verde), and a railway to connect the navigation of the Senegal with that of the Upper Niger has been constructed. The region supplies chiefly **ground-nuts, sesame, palm-kernels**, and other oil-seeds to the market of Marseilles. Timbuktu, a few miles from the Upper Niger, but far below the point of junction of the Senegal-Niger railway, is the chief centre of the caravan trade on the southern borders of the western Sahara. Much salt, which is almost wholly wanting in the Sudan, is brought here from the desert. **Sierra Leone**, a British colony to the south-east, furnishes similar products, but palm-oil and palm-kernels begin to predominate, and these along with cacao and rubber, form the chief exports along the whole coast of Upper Guinea as far as the Congo. Free Town, the capital of Sierra Leone, has an excellent harbour, but a most unhealthy situation. Sherbro, in the eastern district, is a growing port. The native republic of **Liberia**, which next follows, has hardly any foreign trade. All the Ivory Coast, with the port of Grand Bassam, is now French. There then follows the British colony of the **Gold Coast**, with the protectorate of **Ashanti**, the next district in which the foreign trade is of any importance. A considerable export of gold still justifies the name. The chief ports are Cape Coast Castle, Accra, and Sekondi. The two latter are starting-points of railways running north into the interior, that from Sekondi going

to the gold-mining district of Tarkwa, which is said to be capable of considerable development. The German **Togoland,** with the seaport of Lome, comes next, then a small strip of coast with the port of Porto Novo, belonging to the French protectorate of **Dahomey**. This is succeeded by the British colony of **Lagos**,[1] the most important part of the whole coast for the trade in **palm-oil and palm-kernels**. Abeokuta and Ibadan are important inland centres of trade in the Yoruba protectorate, now connected by rail with the port of Lagos. This is the great place of export of the commodities just mentioned, as well as rubber and other forest produce, in spite of the fact that a bar prevents the entrance of large modern ships.

264*a*. The whole territory on the navigable portions of the lower Niger and the Benue (263*b*), from Yola downwards, now form a British possession, forming two administrative divisions. One of these, embracing the higher and healthier uplands in the interior, and including the former native dominions of Sókoto, Gandu, and part of Bornu, forms Northern Nigeria, which contains Kano, Katsena, and other important manufacturing towns, while the Niger delta is included in Southern Nigeria. These two divisions along with Lagos form a single customs union. The whole of this area has now been brought under effective British control, and there is good prospect of the worst of the evils that have hitherto checked the development of trade being remedied. Southern Nigeria contains the ports of Akassa, at the mouth of the main stream of the Niger, and Burutu, or Bludu, on a much deeper arm to the north-west. The chief export products are the same as in Lagos; those of Northern Nigeria at present are ivory, ostrich-feathers, gums, spices, and hides. In both, as well as in Lagos, experiments are being made with the cultivation of cotton.

265. The coast-line under British authority or protection is followed by the German protectorate of the **Kamerun**, and that again by the **French Congo Territory**, extending from the coast to the Congo, and the lower part of the Mobangi. The whole of the coast south of the Congo as far as the river Kunene belongs to Portugal, and so too does a small portion to the north of the Congo. The land on the northern side

[1] Lagos and Southern Nigeria are now under one administration, the whole colony having the name of Southern Nigeria, with the chief seat of administration at Lagos.

of the estuary of the Congo, together with the greater part of the Congo basin, east of the Mobangi, belongs to the Belgian Congo, a state founded by international treaty in 1885, which passed into the possession of Belgium in 1908.

265*a*. By the treaty under which it was founded the **Congo** was not allowed to levy any import duties, but this clause was annulled by agreement in 1890, and the state now has a common import tariff with the adjoining French and Portuguese territories. Steamers are maintained by the state above and below the lower falls, and a railway to avoid the falls between Matadi and Leopoldville was opened in March 1898. The chief exports are rubber, palm-oil, palm-kernels, and ivory. The chief port is Boma.

265*b*. The **Portuguese territories**, south of the Congo, comprise some of the finest land in tropical Africa. There are large districts in the north more than 5000 feet in height, and consequently with a climate almost European. The three seaports of Loanda, Benguela, and Mossamedes (the first and last with two of the finest natural harbours on the west coast) give name to three provinces. The chief **exports** are **coffee**, **rubber**, **palm-oil** (the oil-palm flourishing as far as 10° S.), ivory, and, in the south, cotton.

265*c*. **In East Africa** the **Portuguese** exercise authority over the coast, and a certain distance inland **from Delagoa Bay to Cape Delgado**. The chief seaports in this region are Lourenço Marques, at the head of Delagoa Bay, and Beira, at the mouth of the Pungwe, both of which enjoy the advantage of railway connection with the interior (**259*c*, 260**). Delagoa Bay, though deep and commodious at its mouth, is difficult to navigate higher up,[1] and the port of Lourenço Marques is unhealthy for the greater part of the year. Mozambique, Quilimane, and Chinde are the ports next in importance. Chinde lies on the most advantageous arm of the delta of the Zambezi (discovered only in 1889), but the channel is changeable, and has a minimum depth of only 7 feet at the entrance, while the Zambezi above Chinde can be navigated only by steamers of very shallow draught.

[1] Improvements, however, are being made, and early in 1904 a vessel drawing 23 feet was able to come alongside the wharf at Lourenço Marques.

266. A British protectorate, now known as **British Central Africa**,[1] has been established in the region lying west of Lake Chilwa (Kilwa or Chirwa), and round the south and west shores of Lake Nyasa. Here, on the highlands between Lake Chilwa and the river Shire (263*d*), a British company had established itself long before, and various experiments in cultivation have been made under British direction in this region. Coffee, indigo, rubber, cotton, and other products all thrive, and the cotton is rapidly acquiring importance. The chief settlement in this region is Blantyre, to the south-west of Lake Chilwa, but the seat of administration is Zomba, further north.

267. To the north of British and Portuguese territory a vast area is under German influence. **German East Africa** extends from the river Rovuma in the south to a line running north-westwards from a point on the coast about lat. 4° 40′ S. to Lake Victoria Nyanza, but curving northwards so as to include Mount Kilimanjaro. Westward it stretches to Lakes Nyasa, Tanganyika, and Victoria Nyanza, and to the Congo Free State. The chief ports in this region are Bagamoyo, Dar-es-Salam, and Kilwa. The region next to the north, extending to the river Juba and westward to the frontier of the Congo Free State, forms **British East Africa**, which thus includes the fertile district between Mounts Kenya and Kilimanjaro, and the territories of Uganda and Unyoro, which lie between Victoria Nyanza and Albert Nyanza, at the height of about 4000 feet, and have soils and a climate well suited to sugar, coffee, and other tropical products. The chief port is Mombasa, which has a deep, capacious, easily accessible and well-sheltered harbour, from which a railway on the metre gauge, 584 miles long, runs by very steep gradients to Port Florence, at the head of Ugowe Bay, the easternmost arm of Lake Victoria Nyanza. The railway passes through a great deal of desert country, but also through healthy highlands (Kikuyu, Laikipia, Mau, &c.) adapted for the rearing of cattle, and the cultivation of tobacco, and even European grains. The treaty defining the limits of German and British influence in East Africa (1890) stipulates

[1] Reckoned as part of Rhodesia, but under the administration of a Commissioner appointed by the Crown.

that free passage is to be allowed for British goods through German, and for German goods through British territory.

267*a*. The islands of Zanzibar and Pemba form the chief remnant of the sultanate of Zanzibar, which is now under British protection. Cloves, pepper, and other spices are exported from these islands.

268. The more noteworthy of the remaining ports on the east coast of Africa are on the Gulf of Aden and the Red Sea, and are either starting-points of camel caravans for the interior or places held by European powers as coaling-stations. Berbera and Zeila, in **British Somaliland**, carry on a trade with the fertile oasis of Harrar (which yields coffee for export), and with Shoa to the south-east of Abyssinia. This trade is now, however, threatened by the opening in 1903 of a railway from the French port of Jibuti, or Jibutil, at the mouth of the Gulf of Tajurra to Adis (new) Harrar, at the foot of the plateau on which the oasis lies. Assab and Massaua, with the group of islands to the east of Massaua, are in the Italian colony of **Eritrea**; and Sawákin (Suakim) is Egyptian. Sawákin formerly had a considerable trade with Berber, Khartum, and other places on the upper Nile and in the Nile basin (246*a*). This region is the chief source of the gums of commerce, but will probably become commercially more valuable in the near future.[1]

269. **Abyssinia**, a country composed of lofty tablelands, in which the chief towns are situated at the height of about 6000 feet above sea-level, is at present of little value as regards European commerce, but its position between Egypt and the Sudan makes it of great political importance, and it will probably be more important in the future.

270. **Islands.—A. In the Indian Ocean.—Mauritius** (British) and **Réunion** (French), the most important of all African islands commercially. They are both covered with plantations of tropical products, of which sugar[2] is the chief, the labourers being mostly coolie immigrants (9). Rum, vanilla, aloe fibre, and coco-nut oil are among its other exports. The **Seychelles**,

[1] A railway has been laid from Port Sudan, a little to the north of Sawákin, to Berber, and on the route of this railway, at the mouth of the Atbara, an important experiment in cotton cultivation is being made.

[2] Mauritius annually exports sugar to the value of nearly £3,000,000, chiefly to India, Australia, the United Kingdom, and the United States.

a dependency of the Mauritius, exports **coco-nuts and coco-nut oil**, besides a few minor articles. **Socotra**, off the eastern extremity of Africa (British since 1886), is principally known in commerce for its **aloes**.

The large island of **Madagascar** exports rubber, cattle, hides, wax, and a few other products, but has a very small commerce compared with its population of three millions or thereabouts. Its mountainous but well-grassed and well-watered interior has proved to be admirably suited for cattle-rearing. Since 1885 the island has been a French protectorate, and since 1895 under direct French administration, which grants a preferential tariff to French goods. The capital is Antananarivo, on the interior plateau of Imérina; the nearest port to the capital Tamatave. On the north-east is the fine natural harbour of Diego Suarez, and on the north-west, nearly opposite the port of Mozambique, that of Mojanga. The **Comoro Islands** (French), north-west of Madagascar, furnish sugar, rice, and hides.

B. In the Atlantic Ocean.—The **Azores** (Portuguese), commercially next in importance to Mauritius and Réunion, furnishing oranges (St. Michael), pine-apples, &c.; **Madeira** (Portuguese), exporting wine and fruit; the **Canaries** (Spanish), exporting chiefly cochineal; the **Cape Verde Islands** (Portuguese), with tropical and sub-tropical plantations on Santiago (on which is **Porto Praya**, the seat of government), and an important calling-station at St. Vincent, which, though barren, has a magnificent harbour; **St. Thomas** (Portuguese), in the Gulf of Guinea, with plantations of cacao, coffee, cinchona, &c.; **Prince's Island** (also Portuguese) in the same gulf; **Ascension** and **St. Helena**, both British, now of little value commercially, but used as government coaling stations.

AMERICA.

271. America, or the New World, is less than one-half of the aggregate size of the three great continents of the Old World, Europe, Asia, and Africa. Its population, numbering about 145 millions, is now mainly made up of people of European origin, the remainder being chiefly composed of native Indians, negroes (originally introduced as slaves), and people of mixed race.

NORTH AMERICA.

272. Including the West Indian Islands, this division of the New World comprises more than half the area, and more than two-thirds of the population belonging to the whole. The **surface** is made up mainly of plains and tablelands, and the great mountain chains have a more or less southerly trend. In the west, series of lofty mountains stretch through the entire length of the continent, rising from a tableland, 4000 feet or more in height, which at its widest (about lat. 40°) extends over fully one-third of the breadth of the United States, and east of the **Rocky Mountains**, slopes very gently downwards to a great plain. Towards the south, in the narrower part of the continent, the tableland stretches almost from sea to sea.

272*a*. The general correspondence between the **climate** of the west of North America and that of western Europe, and between the climate of the eastern side of the continent and that of eastern Asia, has been referred to in the paragraphs relating to climate generally.[1] Important climatic effects are due to the direction of the mountain chains. The western mountains, shutting off the moisture from the Pacific (6*b*), cause a large part of the interior of the United States to be too dry for agriculture without irrigation. Further, the open plains and gently rising ground to the east of these mountains allow even the most southerly points of the United States, as well as the east coast of Mexico, to be swept from time to time by keen winds from the north. Even in the extreme south of Texas, in 26° N., the temperature has been known to fall as low as fourteen degrees below the freezing-point.

COUNTRIES OF NORTH AMERICA.

GREENLAND.

273. Greenland is a large mass of land, or group of islands (it is uncertain which), almost wholly buried under ice. The

[1] See also the diagrams of rainfall and temperature given under Canada in the fifth edition of my "Handbook of Commercial Geography."

few settlements on the west coast, inhabited chiefly by Eskimo under Danish rule, are of no importance in commerce, except as being sometimes visited by whalers, and as a source of cryolite, a mineral used in the manufacture of aluminium.

BRITISH NORTH AMERICA.

274.—A. **THE DOMINION OF CANADA** is situated to the north of the United States, from which it is separated partly by the middle line of Lakes Superior, Huron, Erie, and Ontario, partly (west of the Lake of the Woods) by the parallel of 49° N. The inhabitants are mainly of British origin and Protestant in religion; but French Roman Catholics make up about one-third of the population, chiefly in Quebec (285), where the first colonists were French. There are about 120,000 Indians, most of whom are hunters, roaming over the forest regions of the north-west, and living by the sale of furs to the fur-trading companies. The more populous portion of the vast territory of the Canadian Dominion is confined to the region south of the St. Lawrence, west of the city of Quebec, and the land on the north adjacent to that river and the great lakes from Quebec to the south-eastern shore of Lake Huron. Elsewhere the density of the population is almost everywhere under twenty to the square mile. The islands of the Arctic Archipelago are of interest in the history of commerce, from the fact that a north-west passage to eastern Asia was sought for centuries in vain among the channels that separate them. A passage was at last effected by Maclure in 1850–53, but the route is too encumbered by ice to be of any use commercially.

274*a*. The Dominion, formed in 1867, by the union of separate colonies, has a general government and parliament for the common affairs, but it comprises nine provinces with separate parliaments, empowered to deal with matters of local concern. These provinces are in the order from east to west, Nova Scotia, Prince Edward Island, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia. In addition to these there is a vast territory on both sides of Hudson's Bay, not yet so organised. The seat of the general government is Ottawa, in the province of Ontario (286).

275. The surface east of the Rocky Mountains is made up principally of plains and undulating lowlands. In the north there lies a vast area incapable of cultivation, in which mosses and lichens form almost the only vegetation (comp. 134*a*, 181). This area on the east of Hudson's Bay descends as low as 56½° N. There next follows a region of vast forests, chiefly of pines and firs, a region that embraces the whole of the Dominion east of Lake Winnipeg, except the moss-grown area and the limited portions cleared for agriculture. In the west of the Dominion this region is succeeded to the south by open grassy prairies with little or no timber. Between the Rocky Mountains and Lake Athabasca the area of open and almost treeless prairies extends to about 59° N.—700 miles north of the United States frontier.

276. With regard to the **internal communications** of the Canadian Dominion, it is noteworthy, in the first place, that the **St. Lawrence** river and the great lakes, Superior, Huron, Erie, and Ontario, supplemented by a number of short canals (the longest is about twenty-seven miles), form a highly important system of internal navigation. The first of these canals to be constructed was the Lachine[1] Canal immediately above Montreal, opened in 1825, and other canals between Montreal and Lake Ontario were completed by 1843. The Welland Canal, which runs parallel to the Niagara River and avoids the Falls of Niagara between Lakes Erie and Ontario, and is the longest, was constructed in 1824–29. It has 26 locks with a total rise of 326¾ feet. The shortest, but perhaps the most important, is the Sault Ste. Marie ("Soo") Canal between Lakes Superior and Huron, which was constructed between 1889 and 1895.[2] It is little more than a mile in length, and has only one lock, measuring 900 by 60 feet, with a depth on the sill of 20·3 feet at the lowest known water-level. Since 1899 all the other canals on the route have had a minimum depth of 14 feet. In 1903 they were all made free from tolls. To this great

[1] The village from which this canal takes its name was so called (ironically) because the French explorer La Salle was compelled by an accident to turn back at this point when seeking for a way to China by this route in 1686.

[2] Since 1855 there has been a canal on the United States side at this place, and on this side there are now (since 1896) two locks side by side. The traffic through these short canals is much greater than that through the Suez Canal.

navigation route there is only one drawback. It is closed by ice for a shorter or longer period every year. It is usually open from about the end of April or the beginning of May to near the end of November, or even the first week in December.

276*a*. Besides this leading highway for ships, the Canadian Dominion has other less important inland waterways. The river Ottawa, a tributary on the left bank of the St. Lawrence, is continuously navigable, with the aid of a few canals, as far as the city of Ottawa; and from thence there is a navigable connection by the Rideau river and canal with Kingston on Lake Ontario.

276*b*. Above Lake Superior, navigation can be continued with few breaks by Rainy Lake and river, Winnipeg Lake and river, and the North Saskatchewan River to near the base of the Rocky Mountains. Steamers can ascend the last-mentioned river as high as Edmonton. The Assiniboine and Red River, which both belong, like the Saskatchewan, to the basin of Lake Winnipeg, are likewise navigable streams, but the Nelson, the outlet of Lake Winnipeg to Hudson's Bay, is too much obstructed by rapids to be of great service as a waterway.

277. In the more populous parts of the Dominion there is a tolerably complete network of **railways**, and since November 1885, when the **Canadian Pacific Railway** was completed, there has been uninterrupted railway communication from ocean to ocean within Dominion territory. This railway is the shortest line across the continent to New York. The route from Liverpool to Hong-Kong by Quebec and the Canadian Pacific Railway is 550 miles shorter by sea and 200 miles shorter by land than that by way of New York and San Francisco (295).

277*a*. Of the other Canadian railways already completed, two are of special importance. One is the Grand Trunk Railway, the main line of which connects Montreal on the one side with the south-west of the peninsula between Lakes Huron and Erie, there communicating with the shortest line in the United States to Chicago, the great lake-port at the head of Lake Michigan, and on the other side, after crossing the St. Lawrence by a bridge nearly two miles in length (including approaches), proceeds to the United States seaport of Portland (Maine).

The other is the line which connects the Canadian Pacific Railway with Minneapolis in the United States by way of Sault Ste. Marie, and thus affords the shortest route from one of the most important wheat and timber regions of the United States, not only to the eastern seaports of Montreal and Quebec, but also to the north-east of the United States, including the port of New York. A railway from Sault Ste. Marie to Duluth was completed in 1888.

277*b*. A railway from the rapidly developing grain-growing province of Manitoba to a port on Hudson's Bay, to be called Devonport, at the mouth of the Nelson River is now in progress. The importance of this railway arises from the fact that it would form the shortest route for the products of the north-west to England, but its value depends in a great measure on the navigability of Hudson's Bay and Hudson's Strait. The difficulties of navigation are almost confined to the strait, which is 500 miles in length, and for the greater part of the year is obstructed by ice. There is every reason to believe, however, that for at least two or three months every year, and probably for steamers of suitable build considerably longer, this route would be available.

277*c*. On the railways of Canada and the United States four time-standards are in use in different sections. They are known as Pacific, Mountain, Central, and Eastern time, and are based on the meridians of 120°, 105°, 90°, and 75° W. respectively, so that when it is noon at Greenwich it is 4, 5, 6, and 7 A.M. in the different sections in the order in which they are named (12*b*). At Halifax, Nova Scotia, standard time is that of 60° W.

278. **Climate.**—East of the Coast Range on the Pacific side of the Dominion the climate is everywhere one of extremes. Cold but dry winters are followed by warm summers. Heavy falls of snow in winter (snow lying on the ground to a depth of two or three feet) prevail in all parts, but the snowfall is heavier in the eastern provinces than in the north-west. The north-western plains have on the whole an excellent climate as well as an excellent soil for wheat. The total rainfall of the year (including the snow reckoned in inches of rain) is indeed scanty; but it occurs chiefly when most required, namely, in summer,

and above all, early summer. Moreover, the moisture frozen underground always serves to start the crop in spring. Besides occasional droughts the chief drawback of the climate is a liability to early frosts. Hail and thunderstorms accompanied by excessive rains also do damage at times, but the risk of loss from these causes is not great.

279. **Minerals.**—The mineral resources of the Dominion are very great, but in the meantime the mines and quarries in operation furnish products chiefly for home consumption. The minerals of most importance commercially at present, or likely to be so in the immediate future, are **coal** (in the three forms of lignite, bituminous coal, and anthracite), gold, silver, copper, and iron. The **coalfields** are enormous in extent, though as yet worked only where there are special facilities for commerce, as in the neighbourhood of seaports (in the north of Nova Scotia, and in Vancouver Island, British Columbia), and at various points on or near the route of the Pacific Railway, a region in which it is very abundant. The British Columbia coal is important as the only good coal as yet worked on the Pacific coast. There being no coal in the more populous part of the Dominion, (274), which, on the other hand, can be easily supplied with imported coal, the amount of coal consumed in Canada is usually in excess of the amount of coal produced there. On the other hand, there is a considerable export of Canadian coal from both sides of the Dominion to neighbouring parts of the United States. **Gold** is chiefly produced in Nova Scotia, British Columbia, and the North-West Territories (Klondyke). Silver is found in many places, but the most important mines are those in the Kootenay district in the south-east of British Columbia, where the mining towns of Nelson and Rossland have sprung up since 1895. A branch of the Canadian Pacific Railway has been laid into this region near the southern frontier, through the Crow's Nest Pass, on the west side of which it traverses a vast field of excellent coal. Valuable iron ores occur in Nova Scotia, Ontario, British Columbia, and elsewhere. Sudbury, in the west of Ontario, has very productive mines of nickel and copper. Elsewhere copper is mined chiefly in British Columbia.

280. The chief **manufacturing industries** in Canada are those

which consist in *subjecting the raw materials of the country to the simplest processes*, preparatory to sending the products to a home or foreign market. Flour-milling, saw-milling, the manufacture of wood-pulp and various articles made of wood, the making of boots and shoes are among the most important; but lately, under the encouragement of protective duties, the manufacture of cottons and woollens and of agricultural implements has been growing rapidly. The iron and steel industries are encouraged by bounties, which were originally to come to an end on the 30th of June 1907 but have been extended to the end of 1910.

281. **Foreign Commerce.**—Timber makes up about one-sixth of the value of Canadian exports, and among others of importance are cheese, wheat, living animals, bacon and hams, and dried fish. Iron manufactures of all kinds and woollen goods make up nearly one-fifth of the value of the imports, and the other imports of considerable value include coal and coke, cottons and other manufactures, sugar, tea, and other colonial wares. The great bulk of the foreign trade of Canada, both import and export, is carried on with the United Kingdom and the United States, the United Kingdom taking nearly half of the value of the exports, and the United States supplying about three-fifths of the imports.

281*a*. Under an Act of 1897 British goods and the goods of the West Indies, and any other British colony which has a customs tariff on the whole as favourable to Canada as that of Canada is to it, have enjoyed since August 1, 1898, a preferential tariff. At first an abatement of 25 per cent. was allowed, then, from July 1900, one of $33\frac{1}{3}$ per cent. A bill substituting specific abatements on different British goods was introduced into the Canadian parliament in the session of 1906–7.

282. **Provinces and Towns.**—(1) **Nova Scotia**, a province including both the peninsula of that name and the island of Cape Breton to the north: in all about two-thirds of the size of Scotland. The fertile land, less than half the entire area, is mainly situated in the interior. The valley of Annapolis is the most favoured district in respect of soil and climate, and is above all noted for its **apple orchards**. The fisheries of this province furnish the bulk of the Canadian export of fish. The

capital Halifax, on the east coast, is situated at the end of a fine natural harbour, which, being in most years free from ice all the winter through, makes Halifax the chief winter port of the Dominion. It is the principal naval station of British North America. British troops were quartered here till the 1st of September 1905. The city and harbour are defended by fortifications. Important iron and steel works have been established at Sydney on Cape Breton Island, the ore being obtained from Newfoundland, while smelting coal and limestone for flux are obtained in any amount at Sydney itself.

283. (2) **Prince Edward Island**, about the size of the county of Norfolk, in the Bay of the Gulf of St. Lawrence between New Brunswick and Nova Scotia. From the nearest point of New Brunswick it is distant 9 miles. Capital, Charlottetown, on a large, deep, and well-sheltered harbour.

284. (3) **New Brunswick**, rather less than Scotland in size, very rich in forests, and also possessing valuable fisheries. The capital is Fredericton, a small town at the head of navigation for steamers on the St. John River, but the largest town and chief seaport is St. John, occupying a fine harbour on the Bay of Fundy at the mouth of that river. The harbour is open all the year round, and since 1895 has carried on a large export trade to Liverpool in living animals, dairy produce, &c.

285. (4) **Quebec**, on both sides of the St. Lawrence, mostly east of the Ottawa, a province twice the size of Great Britain, but the population of which is mainly confined to the small area above indicated (274). The winter is long, but the summer is warm enough to grow not merely the ordinary crops of the British Isles, but also maize and tobacco. The majority of the inhabitants of the province are of French origin, and, unlike the people of France, are increasing in numbers with great rapidity. The capital of the province is Quebec, at the confluence of the Charles River with the St. Lawrence. Montreal stands on an island in the St. Lawrence, 180 miles above Quebec, at the head of ordinary ocean navigation on the river. Since the deepening of the river above Quebec the ship-channel, which has a minimum width of 300 feet, has a depth of 27½ feet at ordinary low water, except at a few points. Montreal is now consequently the chief seat of com-

merce in the Dominion and, unlike Quebec, rapidly increasing in population.[1]

286. (5) **Ontario**, more than half as large again as Great Britain, is the province to the west of Quebec, extending along the north of the great lakes. The populous region, which is the most southerly part of the whole of the Dominion, has a much shorter winter than that of Quebec. Barley, formerly grown for malting purposes, was largely exported for use in the New York breweries, but being shut out of the United States by high duties it is now used chiefly for stock-feeding. The south shore of Lake Ontario, between Hamilton and the river Niagara, is one long succession of vineyards and orchards, growing peaches and other soft fruits, and is hence known as "the garden of Canada."

The capital is Toronto,[2] a prosperous town near the west end of Lake Ontario, on which it has a fine harbour. The harbour fixed the precise site of the town, but the rapid growth of its commerce and industry has been chiefly due to railway traffic. The town lies where the railway following the river and lake from Montreal upwards begins to branch in many directions through the lake peninsula. Another thriving town is Hamilton,[3] at the extreme west of the same lake. The chief inland town is London. As to Kingston, see 276*a*. Port Arthur and Fort William are two shipping points for grain at the west end of Lake Superior, Fort William being the chief, as it is the first point reached on the lake by grain brought from the west. Here accordingly the wheat stores (" elevators ") have a greater aggregate capacity than anywhere else in Canada. Ottawa,[4] the seat of the Dominion government, stands on the river of the same name, about ninety miles above its confluence with the St. Lawrence. It is an important centre of the lumber-trade of the province.

[1] Population in round numbers of Quebec and Montreal:—

	1861.	1881.	1891.	1901.	1911.
Quebec . .	60,000	62,500	63,100	68,000	78,000
Montreal . .	90,000	141,000	215,000	270,000	470,000

[2] Population (present area) in 1881, under 100,000; 1891, 181,000; 1901, 208,000; 1911, 380,000.

[3] Pop., 80,000.

[4] Pop., 90,000.

287. (6) **Manitoba**, the rich, flat **wheat**-growing province (278) in the west, is about two-thirds of the size of Great Britain. It encloses the lake of the same name, and the greater parts of Lakes Winnipeg and Winnipegosis. The capital is Winnipeg,[1] situated at the confluence of two navigable rivers, the Red River, which flows northwards from the United States through one of the richest wheat valleys in the world, and the Assiniboine, which comes from the west.[2] Comp. paragraph 77.

288. The two provinces of Saskatchewan and Alberta, extending from the United States frontier to 60° N., were created in 1905. (7) **Saskatchewan** is mainly a wheat-growing province,[3] especially in the south-east. Its capital is **Regina**, from which a branch railway runs north to Prince Albert on the Saskatchewan River. (8) **Alberta** originally owed its settlement to the advantages for cattle-ranching offered by the natural pastures to the east of the Rocky Mountains, but is rapidly attracting agricultural settlers, who grow more oats than wheat, though even winter wheat is produced in rapidly increasing quantity.[4] In the south sugar-beet is grown under irrigation. The capital is **Edmonton**, at the head of steamer navigation on the Saskatchewan, and at a point to which railways are giving increased importance. Coal is mined in this province near Edmonton, at Anthracite and Canmore west of Calgary, round Lethbridge to the south of Calgary, and near the Crow's Nest Pass. In this province, round Banff, is the Rocky Mountains Park, with numerous hot springs and natural beauties.

289. (9) **British Columbia** is made up of the mountainous area situated mainly to the west of the Rocky Mountains, with the moist, mild strip of coast and the islands to the west. The principal wealth of this province consists in its **minerals** and **forests**. The discovery of gold first brought a rush of settlers here in 1856. Gold, silver, and copper are all mined in the extreme south (at Rossland, Nelson, &c.); copper also on Texada Island in the Straits of Georgia, between Vancouver Island and the mainland; coal at Nanaimo on Vancouver Island. Coal

[1] Pop. in 1871, 200; in 1901, 42,000; in 1911, 135,000.

[2] Area under wheat in 1881, 51,000 acres; in 1905, 2,644,000 acres; in 1911, 3,339,000 acres.

[3] Area under wheat in 1898, 276,000 acres; in 1906, 1,332,000 acres; in 1911, 5,232,000 acres.

[4] In 1898, area in oats, 39,000 ac., wheat, 31,000 ac.; in 1910, oats, 493,000 ac., wheat, 593,000 ac., of which 142,000 winter wheat. The total area in wheat

from the coalfield near the Crow's Nest Pass (279) is made into coke at Fernie for use in the smelters in the metal mining district further west. The forests of the Coast Range, composed of gigantic pine and fir trees, are among the grandest in the world. The capital is Victoria, on a beautiful harbour at the south-east end of Vancouver Island. It has a considerable entrepôt trade with ports of Canada and the United States reached by the Straits of Juan de Fuca on the one hand, and those of Pacific islands and eastern Asia on the other hand. Vancouver, which has excellent harbour accommodation at the mouth of Burrard Inlet, and New Westminster, near the mouth of the Fraser River, are the two western termini of the Canadian Pacific Railway. The name of Prince Rupert has been selected for the new port to be established on Kai-En island near 55° N. as the terminus of the Grand Trunk Pacific Railway.

289 (*a*). **Northern Canada.** The remainder of the Dominion is divided into the districts of Ungava (east of Hudson's Bay), Keewatin, and Mackenzie, and the territory of the Yukon. They all yield furs, and the Yukon territory contains the Klondyke goldfield with Dawson City. The goldfield is difficult of access, but not so difficult now that a railway leads from Skagway over the White Pass to a navigable river of the Yukon basin.[1]

290.—B. **NEWFOUNDLAND**, a British colony to which belongs not only the island of that name, but also the dreary coast of **Labrador.** The island is about one-fourth larger than Ireland, but it contains at present only a small population, mostly fishermen, settled on the coast. They carry on chiefly cod-fisheries on the shallow known as the Great Bank of Newfoundland to the south of the island, and off the coast of Labrador. Blubber-seals are caught in the Gulf of St. Lawrence. The only exports of importance are dried cod-fish, train-oil, blubber, and iron ore. The iron ore, of excellent quality, is quarried on a small island called Bell Island in Conception Bay. Capital, **St. John's**, on the east coast. (See **12.**) The small island of **Miquélon**, south of Newfoundland, belongs to the French, and is the centre of the French fisheries in these waters. French fishermen have the right by treaty to catch

[1] Value of gold produced in the Yukon district in 1896, about £60,000; in 1900, £4,450,000 (the highest yield down to 1904).

fish on part of the coast of Newfoundland, and to dry them on the land, but are not allowed to form permanent settlements there.

C. **THE BERMUDAS**, a group of small islands about 750 miles to the south of Nova Scotia, producing tropical and temperate fruits and early vegetables for the great towns in the east of the United States.

UNITED STATES.

291. The United States form a great republic, made up of forty-five states and four territories, besides the outlying district of Alaska, north-west of the Canadian Dominion, and the Hawaiian Archipelago. The "states" are smaller republics with regard to local affairs.

292. The territory of the United States, exclusive of Alaska (302*g*), extends over an **area** of about three millions of square miles, or more than thirty-three times the area of Great Britain. All but a small fraction of the **population** of the United States is of non-American origin, being composed mainly of immigrants or descendants of immigrants from Europe, or of descendants of African negroes originally introduced as slaves (9, 296B). The negro population is multiplying rapidly, but the native Indians are dwindling away. On the Pacific coast there are about 100,000 Chinese, but the further immigration of Chinese is prohibited.

293. **Surface.**—The extension of the authority of the United States over the whole of the territory now belonging to them has been gradual, and has been favoured to some extent by geographical conditions. The central region of this territory is one great plain communicating freely with other plains and lowlands east and south of the Appalachian Mountains (294*b*), and in the west, sloping imperceptibly up to the tableland which forms the base of the Rocky Mountains (272). This great central plain is traversed by some of the grandest navigable rivers in the world.

294. **River Navigation.**—The Mississippi is continuously navigable for steamers of considerable size to the rapids below the Falls of St. Anthony, on the parallel of 45°; that is, to

within four degrees of the northern frontier. It traverses a region in which the products of temperate and tropical climates are brought closer together than in any other part of the world, and, before the introduction of railways, formed the principal channel of communication between districts with the diverse wants due to diversity of production. Even yet, it need scarcely be added, it is of high importance as an auxiliary and rival means of communication. "During the navigation season of eight months more freight is floated on the upper Mississippi [St. Louis to the rapids] than any of the three great trunk lines of railroad carry in a year, and at about one-third the rate."

294*a*. The Ohio, the tributary which joins the Mississippi on the left bank from a populous region in the north-east, is navigable, with only one interruption, for large steamers for six or eight months in the year, as high as Pittsburg (in about the same latitude as New York), where the river is formed by the union of two other navigable streams. The one interruption referred to is in the form of rapids, avoided by a short canal at Louisville, and for small steamers these rapids are not insurmountable. The Cumberland and the Tennessee, on the left of the Ohio, and the Wabash on the right, have likewise considerable stretches of navigable water. The Red River, the Arkansas, and the Missouri, the great right bank tributaries of the Mississippi, are also all navigable for hundreds of miles, the Missouri for more than two thousand miles, steamers being able to ascend it uninterruptedly to the Great Falls, about a hundred miles below the gorge known as the Gate of the Rocky Mountains. In the same great plain, but outside of the basin of the Mississippi, the Red River of the North, which flows northwards into Canada, is navigable for steamers to Fargo, a point about two hundred miles in a direct line from the limit of continuous navigation on the Mississippi.

294*b*. The Appalachian Mountains in the east, and the Rocky Mountains and other chains in the west, form an interruption to communication in this, among other ways, that they cause the rivers which cross them to have their navigation interrupted by rapids. It is partly on this account, partly on account of their smaller size, that the rivers of the Atlantic coast are of less im-

portance than those of the great plain as navigable streams; but it must be remembered that some of them (the Hudson, Delaware, Susquehanna, Potomac, and James River) are of great value to commerce, as forming, like the rivers of the British Isles, fine harbours in their estuaries; and even the upper navigation of the Hudson, a broad, deep river, navigable for large steamers to the latitude of the Catskill Mountains, for smaller ones to the falls at Albany, is of great importance, all the more because it has the greatest of all American seaports (New York) at its mouth.

294*c*. The Columbia River, the principal navigable stream belonging to the Pacific drainage of the United States, has its navigation frequently interrupted by falls and rapids, and so too has its chief United States tributary, the Snake River. On the main stream the lowest interruption of this nature is the Cascades, 165 miles from the mouth, but costly works enable navigation to be continued past this obstruction.

295. The obstacles presented to the laying of **railways** by the great mountain chains in the east and west are less, perhaps, than might have been expected from the extent and height of the mountains. The gradual slope of the ground up to the base of the Rocky Mountains has facilitated the laying of railways to the foot of the passes, and several routes have been discovered along which railways could be advantageously laid across these and other western mountains. The Californian valley, physically the most isolated of all the more productive regions of the United States, is now connected by rail with the rest of the country by lines laid across the mountains on the north, east, and south. Eastwards runs the line belonging to the Union and Central Pacific Railroads, a line completed on May 10, 1869, when railway connection between New York and San Francisco was thus established for the first time. Northwards a line of railway (completed in 1887) connects the Californian valley with the termini of the Northern Pacific Railroad (Portland on the Willamette, the chief seaport of the Columbia basin, and Tacoma on Puget Sound). Southwards runs the Southern Pacific Railroad, which directly unites San Francisco and New Orleans, and on the one side has a connection with another railway or series of railways leading across the Rocky Mountains to St. Louis, the

great port on the middle Mississippi, on the other side connections with Mexico. (See also 277*a*, and 277*c*.)

295*a*. In the case of the Appalachian Mountains (that name being now used as a general term for all the mountain ranges in the east), it is an important physical feature of the United States that in the north-east, precisely where population is densest, mineral wealth most abundant, the connections between east and west most important, that system breaks up into a great number of smaller mountain ranges with many gaps between them, facilitating railway and canal construction. To this region belong several of the most important **canals** of the United States. The most important of all is the Erie Canal, which serves to connect the navigation of the great lakes with New York, starting from Buffalo, at the eastern end of Lake Erie, and proceeding eastwards to Albany on the Hudson. It was opened in 1825.

296. With regard to its climate and productions the territory of the United States may be divided into four regions, two east and two west of the meridian of 100° W.

A. The North-east.—North of the Ohio and Delaware Bay, comprising, among others, the New England States. In this region the inhabitants are almost all of European origin, and the **products are similar to those of Europe.** The eastern portion of it is the most densely peopled part of the United States, and that in which manufacturing industries are most highly developed.

B. The South-east, a region in which **tobacco** and **cotton** are grown as staples, and in which **negroes** form a large proportion of the population, even outnumbering the people of European descent in the states on both sides of the lower Mississippi. The rainfall of this region, at least in the south-east, is much heavier than in the former, and occurs mainly in summer, the prevailing winds having a monsoon character (6*b*).

C. The region between 100° and 120° W. (mostly tableland), comprising an area of about 1,200,000 square miles, may be described as the **arid region of the United States,** inasmuch as throughout its extent, except in the neighbourhood of mountains (6*b*) and near the northern frontier, the rainfall is too

scanty for agriculture without irrigation. This region is, however, rich in metals.

D. The Pacific Coast.—In this section of the United States the climate is very moist on the mountain slopes, especially in the north, but on the plains is comparatively dry, and south of about 40° N. it resembles that of the Mediterranean region, the summer nearly rainless, the winter mild. Gold, which first attracted a large population to this part of the world, is still an important product; but the fine Californian valley, watered by the Sacramento in the north and the San Joaquin in the south, now teems with wheat, barley, wine, tobacco, hops, and southern fruits (**24**). Excellent wheat is also grown on both sides of the Columbia River. On the mountains the forest scenery is highly remarkable. Dense forests of giant conifers cover the slopes, and a great timber-trade has grown up round Puget Sound (Washington).

297. **Agricultural Products.**—The chief crops of the United States in the order of their importance, with respect to the extent of ground they occupy, are maize (known in the United States as "corn"), wheat, cotton, oats, barley, rye, buckwheat, tobacco. Of late years the area under wheat has been stationary or declining in the states east of the Mississippi, but rapidly extending in Minnesota and North Dakota (the states which share with the Canadian province of Manitoba (**287**), in the Red River Valley), California, and other states west of the Mississippi. The extent of land now occupied by maize is nearly twice as great as that under wheat, and its produce is about five times as much as that of the latter. The much smaller export of maize than of wheat is due to the fact that the bulk of the former crop is employed in the United States in feeding swine and other animals, so that the export of bacon, hams, and lard (**302**), as well as maize, may all be regarded as representing this branch of American agriculture.

297*a*. The **living animals** exported from the United States are chiefly **cattle** (**29**), and these, as well as cheese, are mainly the produce of the states east of the Mississippi, and near the northern frontier west of that river. It is in these regions that this branch of agriculture is most rapidly developing. It is in the western states and territories, however, that sheep are

multiplying most rapidly, the drier climate there prevailing being favourable to the rearing of that animal (30).

297*b*. With regard to the **agricultural deficiencies** of the United States, which have to be made good by imports, attention may be drawn to two, *sugar* and *fruits*. **Sugar** has held the first place among the imports of the United States for many years. The cultivation of sugar-cane is almost confined to the south of one state, Louisiana. Though sugar-beet (26) thrives in many places, and sugar is now being made from it to a limited extent in the United States, it cannot generally be made so cheaply as to compete with sugar of this origin made on the continent of Europe. The ordinary **fruits** of the colder temperate climates flourish in the United States as well as in any part of the world, and are produced in sufficient abundance to leave a surplus for export. The imported fruits are mostly those of the Mediterranean region, **oranges**, figs, grapes, currants, raisins, &c.; and of the first mentioned of these, a large supply is home grown in irrigated fields in California.[1] This state now produces the raisin-grape also, and raisins are made there. A great deal of rice is grown in the swamps of Louisiana and other south-eastern states, but rice is largely imported, chiefly by the Pacific states, where it is no doubt principally consumed by the Chinese population (292).

298. The **wood** export of the United States takes place from Puget Sound (296, D), Pensacola, New York, and various other ports. Pensacola, 55 miles east by south of Mobile, is the chief place of export of pitch-pine from the "pine-barrens" of Florida and the neighbouring states.

299. **Minerals.**—Coal (59) is produced both in the form of anthracite and bituminous coal, as well as lignite. Of both the principal forms of coal, the chief producing state is Pennsylvania, which yields 60 per cent., or more, of the total quantity produced in the country. Anthracite is produced in several small fields in the east of the state, the centre of the region of production being about 200 miles from New York and 125 miles from Philadelphia, with both of which great cities the producing region is connected both by rail and water

[1] The former orange groves of Florida and some other southern states have been destroyed by severe frosts (272*a*).

(canal or river). Ordinary bituminous coal isproduced chiefly in the west of the state round Pittsburg, but this coal-yielding region extends into the neighbouring parts of Ohio. Further west another productive coal region extends from the west of Indiana through Illinois to the eastern half of Iowa. Illinois ranks next after Pennsylvania as a coal-producing state. Among the Appalachian ranges in eastern Kentucky and Tennessee and northern Alabama are other coalfields with a rising production.

299*a*. The **iron ores** of the United States are likewise very abundant and very widely distributed. The chief region of production is south and west of Lake Superior, Marquette in Michigan being a lake-port noted for its trade in this commodity. The ores of this region are not only very abundant, but easily worked, very rich in iron, and of such quality as to be well suited for the making of steel on a large scale by modern processes. Other districts noted for their iron ores are the east of Pennsylvania and north of New Jersey, districts in New York to the west of Lake Champlain, the south-east of Missouri, and the north of Alabama. The great **smelting centres** and seats of production of rolled iron and the larger iron manufactures are on the coalfields. Pittsburg takes the lead, but the industry is also very important in eastern Pennsylvania. Ohio is the state that ranks next in this respect, and the third is Illinois, which has large coalfields in the south-west within easy reach of the ores of Missouri. In northern Alabama, where coal, iron ore, and limestone abound, the industry is growing very rapidly. See **60**.

299*b*. The **precious metals** (62) of the United States are chiefly produced among the mountains in the west; **gold** principally on the Californian side of the Sierra Nevada, and in Colorado (at Cripple Creek, about the middle of the state, and elsewhere); **silver** principally in the Rocky Mountains, in the state of Colorado, and the territory of Montana (in which latter mines of remarkable richness have recently been worked at Butte), and on the eastern side of the Sierra Nevada, in the state that takes its name from that range. **Quicksilver (64)** is produced very abundantly at New Almaden, near San Francisco.

299*c*. **Petroleum** (61) is produced chiefly in Ohio, West

Virginia, and the north-west of Pennsylvania. There is a considerable production also in California, Indiana, and New York, and a smaller, though not unimportant supply, is obtained in south-eastern Texas. The oil is conveyed in pipes from the places of production to Pittsburg, New York, Buffalo, and other large towns. The **copper** production (63) of the peninsula of Keeweenaw, which juts north-eastwards into Lake Superior (state of Michigan), formerly made up at least 60 per cent. of the whole production of the United States, but in recent years great quantities of copper ore have been produced likewise in the south-east of Arizona, and, still more recently, the mines of Butte, Montana, have made that state a rival to the Lake Superior region in the production of copper.

The chief centre of **lead** production (63) is Leadville, among the Rocky Mountains in Colorado, a town which likewise produces large quantities of gold and silver. Illinois and Kansas have the chief **zinc** mines (63).

Natural gas occurs abundantly in western Pennsylvania and a belt extending thence westwards through **Ohio**, about fifty or sixty miles to the south of the west end of Lake Erie, and **Indiana**.

299*d*. There is only one metal of importance in which the United States are almost entirely deficient, and that is **tin** (63). Tin ores indeed exist among the Black Hills (Harney Peak), in South Dakota, but in small quantity. Hence there is a large **import of tin** for the manufacture of tin-plate, which is much used in making packing-cases for American products of agriculture, &c. There is still also a considerable import of tin-plate, but this has declined very greatly since 1890, owing to the rapid growth of the native manufacture under the protection of a high duty.

300. **Manufactures.**—With regard to these, it is noteworthy, in the first place, that they are to a large extent carried on with the aid of **water-power**, and the application of electricity in making use of this source of power at Niagara and in many other places, is advancing rapidly. The use of coal, however, is increasing with still greater rapidity. The table at paragraph 59 shows that in the last year of the nineteenth century the United States was already ahead of the United

Kingdom in coal production, and it is increasing its lead in this respect every year.[1] Since 1889 the average price of coal at the pit mouth in the United States has been considerably less than in our own country. These circumstances, along with a protective fiscal policy, made more stringent in 1890, have imparted a great stimulus to manufactures. About twenty years ago what is still true of the general character of the leading manufacturing industries of Canada (280) was true also of those of the United States, but it is so no longer.[2]

301. The principal industries making large use of water-power are saw-milling, flour-milling, and cotton-spinning, more recently also the manufacture of wood-pulp. Water-driven flour-mills may almost be said to have created the towns of Rochester (New York), beside the falls of the Genesee (the power from which is now used for a variety of purposes), Minneapolis (Minnesota), at the Falls of St. Anthony on the Mississippi, and Spokane (Washington). Water-power is still important in the cotton industry in both its seats, New England, and the southern states. Fall River (Massachusetts), the chief cotton-spinning town in the United States, had its first cotton-mill built in 1813 beside the falls which gave name to the town, and for half a century afterwards all the subsequent mills of the town were built beside the same falls. Water-power is also chiefly employed in the cotton-mills of Lowell (Mass.), of Manchester, and Nashua in New Hampshire, and in those of Augusta and Columbus in the southern state of Georgia. On the other hand, steam-power is mainly employed in those of New Bedford (Mass.), and, in the southern states, in those of Atlanta (Georgia),

	1880.	1910.		1880.	1910.
Rochester	90,000	220,000	Nashua	13,000	26,000
Minneapolis	45,000	300,000	Augusta	22,000	41,000
Spokane	...	105,000	Columbus	10,000	18,000
Fall River	50,000	120,000	New Bedford	27,000	97,000
Lowell	60,000	105,000	Atlanta	34,000	155,000
Manchester	33,000	70,000			

[1] In 1910 the total amount of coal produced in the United Kingdom was 264, in the United States 447 million tons.

[2] At the census of 1900 the amount of capital invested in industries wholly or mainly connected with iron and steel was about three times as great as that invested in the leading textile industry—cottons.

and Columbia (S. Carolina). The *falls* of the Passaic are the chief source of the power used in the silk-mills of Paterson (New Jersey), the chief silk-manufacturing town in the United States.

302. **Foreign Commerce.**—Raw cotton, wheat, and wheat-flour make up nearly one-third of the total value of the **exports** of the United States, and among the other leading exports are iron and steel manufactures, maize, bacon, hams, and lard, mineral oil, wood and manufactures of wood, copper, tobacco, and living animals. Sugar and molasses and other tropical products (coffee, rubber, jute, &c.) form a large proportion of the **imports**; and among others are hides and skins, chemicals, raw silk, cotton manufactures, silk, flax, and woollen manufactures, fruit, and tea. Great Britain takes about one-third of the total value of the exports, the countries coming next under this head being Germany, Canada, Holland, France. Great Britain is also first in supplying the imports, the countries ranking next being Germany, France, Cuba, Brazil, the British East Indies, British North America, and Japan.

302a. **Chief Towns.—Seat of the General Government:** Washington, in the District of Columbia, which belongs to none of the states.

302*b*. **Great Inland Centres of Trade.—A. Lake Ports.**—Rochester (New York), the chief port on the United States side of Lake Ontario; Buffalo (New York), the eastern terminal port for all the lakes above the Falls of Niagara, and western terminus of the Erie canal; Erie, the Pennsylvanian port of Lake Erie, with large *imports* of iron ore; Cleveland, the largest town in Ohio, about the nearest point of Lake Erie to Pitsburg, with the largest trade in iron ore on the lakes, and a great outward trade in coal, as well as large manufactures; Toledo (Ohio), at the extreme south-west end of Lake Erie, with a trade originally promoted, like that of Cleveland, by a canal; Detroit (Michigan), at the extreme head of Lake Erie, with

	1880.	1910.		1880.	1910.
Columbia . .	10,000	25,000	Erie	28,000	67,000
Paterson . .	50,000	125,000	Cleveland . .	160,000	560,000
Washington . .	147,000	330,000	Toledo . . .	50,000	170,000
Buffalo . . .	155,000	425,000	Detroit . . .	115,000	465,000

large manufactures of stoves, connected by ferry with Windsor, Ontario; Chicago (Illinois,) the most populous town in the United States except New York, situated at the head of Lake Michigan in such a position as to secure all the eastward trade by lake in the enormous quantities of agricultural and pastoral products from a wide region to the west and south-west, and in addition to that all the eastern trade by rail from the same region as well as from all the north-west; Milwaukee (Wisconsin), on the west side of the lake, with a considerable lake trade eastwards and southwards, but without the rail trade of Chicago, a town with a large German element in its population; Duluth, (Minnesota) and Superior (Wisconsin), two towns facing each other about the head of Lake Superior, but on opposite shores, both with a large trade in grain and iron ores (299*a*).

B. Other Towns.—Pittsburg-Allegheny (Pennsylvania), at the head of the Ohio, with a river frontage of navigable water unsurpassed elsewhere in the United States (see also 294*a*, 299, 299*c*, 302); Cincinnati (Ohio), lower down on the river Ohio; Indianapolis (Indiana), which originally grew up with no other advantage than that of a central situation in a highly productive agricultural region, but now also enjoying the benefit of natural gas and mineral oil; St. Louis (Missouri), on the Mississippi, a little below the confluence of the Missouri, and, what is more important, one of the most important crossing-places of the river Mississippi, which, till about 1890, had no bridge lower down; St. Paul and Minneapolis (301), two adjacent towns in Minnesota, St. Paul, at the head of the unbroken navigation of the Mississippi, and now the chief railway centre in the north-west; Kansas City (Missouri), and Omaha (Nebraska), two crossing-places of the Missouri, Kansas City at the confluence of the Kansas River, and on the route westwards from the Atlantic by way of Cincinnati and St. Louis; Omaha, further north, on that leading west by Cleveland and Chicago.

	1880.	1910.		1880.	1910.
Chicago . .	500,000	2,200,000	Indianapolis . .	75,000	235,000
Milwaukee . .	115,000	375,000	St. Louis . .	350,000	690,000
Duluth . .	3,500	80,000	St. Paul . .	40,000	215,000
Superior . .	700	40,000	Kansas City . .	56,000	250,000
Pittsburg-Allegheny	240,000	535,000	Omaha . . .	30,000	125,000
Cincinnati . .	255,000	365,000			

302*c*. **Seaports.**—The principal, in the order of their importance in respect of the tonnage of shipping, entered and cleared in foreign trade, on the average of recent years, are New York, Boston (Massachusetts), Philadelphia (Pennsylvania), New Orleans (Louis.), Baltimore (Maryland), Puget Sound (Washington), San Francisco (Cal.), Galveston (Texas), Newport News (Virginia), a port which has recently developed a large export trade in **coal**; Mobile (Alabama). New Orleans is a great cotton port, and so also are Galveston and Mobile, as well as Savannah (Georgia), and Charleston (South Carolina), which are not mentioned in the preceding list.

302*d*. In respect of the amount of its foreign commerce, New York is without a rival. It shares with Boston the trade with the interior westwards to Chicago, and thence west and north-west. Both have excellent natural harbours, but New York has the advantage of a way into the interior by the Hudson River and the Erie Canal and the valleys followed by these waterways, whereas Boston is cut off from the interior by the Hoosac Mountains, through which there was no railway tunnel till 1875.

302*e*. Most of the gulf ports have naturally poor harbours. A depth of 31 feet to New Orleans,[1] and one of 29 feet across the bar of Galveston, are maintained only with difficulty. The wharves at Mobile can be reached only by vessels drawing no more than 21 feet. San Francisco has an excellent natural harbour, and has the additional advantage of being the sole outlet for the Californian valley, from the greater part of which, however, it is separated by the arms of the inlet on which it lies.

302*f*. Among the **minor seaports** of the United States may be mentioned Newport (Rhode Island); Wilmington (Dela-

	1880.	1910.		1880.	1910.
New York . .	—	4,800,000	Portland (Me.) . .	34,000	60,000
Boston . . .	360,000	670,000	Savannah . . .	31,000	65,000
Philadelphia . .	850,000	1,550,000	Charleston (S.C.) .	50,000	60,000
New Orleans . .	216,000	340,000	Wilmington (Del.) .	42,000	90,000
Baltimore . .	330,000	560,000	Galveston . . .	22,000	37,000
San Francisco .	234,000	415,000			

[1] Improvements are being made (1903) in the South-West Pass which will give a channel 35 feet deep.

ware); Norfolk (Virginia), at the south of the entrance to Chesapeake Bay; Richmond (Virginia), a great tobacco port; Wilmington (North Carolina); Pensacola (in the north-west of Florida), chiefly a timber port (298); Portland (Oregon), a great wheat port of rising importance.

302*g*. The United States has two outlying territories, Alaska and the Hawaiian Archipelago (356*c*). Alaska lies to the north-west of the Dominion of Canada, and was acquired from Russia by purchase in 1867. It has an area more than six times that of Great Britain, and is traversed by a magnificent river, the Yukon, but produces commercially little besides furs, salmon, and gold. Gold has long been mined on Douglas Island, opposite Juneau, in 58° 15′ N., but now the chief deposits are at Nome, on the north side of Norton Sound, nearly opposite the mouth of the Yukon.

302*h*. The foreign possessions of the United States were mainly acquired in consequence of a war with Spain. They consist of the West Indian island of Puerto Rico, the Philippine Islands, the island of Guam, and part of the Samoan Archipelago. Total population under 8,000,000.

MEXICO AND CENTRAL AMERICA.

303. In these parts of North America Spanish is the language of the civilised inhabitants.

304. **MEXICO.**—Mexico is a country with a government nominally similar to that of the United States. Its territory, though between eight and nine times the size of Great Britain, is in the north a continuation of the arid and desert region in the south-west of the United States, and the densest population is found on the narrower portion to the south of the Tropic of Cancer, and more particularly on the **tableland of Anahuac**, on which stands the city of Mexico, at the height of about 7500 feet above sea-level. On this tableland are grown grain-crops, **maize** being the chief. Here also is cultivated the **agave**, the sap of which when fermented yields the favourite drink of the Mexican people, called pulque. An allied plant which grows

	1910.		1910.
Richmond	**130,000**	**Portland (Or.)** . . .	**210,000**

wild, and thrives admirably in the somewhat dry climate of the low-lying peninsula of **Yucatan**, furnishes **henequen** (44), which is rapidly growing in importance as an export. On the lowlands outside of the tableland are grown various tropical products, coffee being the most important, then cacao, sugar tobacco, and vanilla. The forests also yield cabinet ana dye-woods.

304*a*. Hitherto by far the most important exports have been the precious metals, and especially **silver**. In other minerals also Mexico is remarkably rich, but even in the most accessible of all the provinces, that of Vera Cruz, on the Gulf of Mexico, improved communications are needed to develop that wealth. There is abundance of coal, iron ore, and petroleum, besides other minerals, to reward enterprise in supplying this defect. Already both coal and iron ore are being increasingly worked. The Sabinas coalfield in 28° N. is connected by rail with the rest of the republic, and so also is the iron mountain of Cerro del Mercado at Durango in the north-west. Iron and steel works have been erected at Durango, Monterey, and elsewhere.

305. The **difficulties of communication** have long been one of the chief obstacles to the development of the country, but the railway system of Mexico is extending. There has been a railway (in English hands) from Vera Cruz, the chief port, to the capital since the beginning of 1873. Since 1884 there has been direct railway connection between the city of Mexico and the United States, and two other railways from this city to the United States have since been opened. A railway has been constructed across the Isthmus of Tehuantepec, where the Rocky Mountains become narrowed to a single chain about 800 feet in height. At present improvements are being made on this railway with the view of making it part of a great Atlantic-Pacific trade-route, and harbours with a depth of 33 feet, with quays and wharves provided with the best modern appliances for the handling of cargo, are being constructed at Coatzacoalcos, the Atlantic, and Salina Cruz, the Pacific terminus of the railway. Among other railways projected is one from the Pacific seaport of Acapulco to the capital. Acapulco

Monterey . . . 60,000

has the finest natural harbour on the coast of Mexico, and was a place of great note in the early period of Spanish domination.

305*a*. Since the opening of the northern railways a much larger share of the Mexican commerce has naturally come into American hands. The United States and the United Kingdom take together more than four-fifths of the entire exports, the share of the former being somewhat the larger of the two. These countries also supply the bulk of the imports, which consist mainly of manufactured articles.

306. **Chief Towns.**—Capital, Mexico. **Other Inland Towns**—Leon, Guadalajara, Puebla, Guanajuato, all on the tableland; Merida (in Yucatan). **Seaports**—Vera Cruz, and Tampico on the Gulf of Mexico, both ports now greatly improved, and Tampico connected by rail with San Luis Potosi; Progreso, in Yucatan; Mazatlan and Acapulco on the Pacific.

307. **CENTRAL AMERICA.**—The six republics of **Guatemala, San Salvador, Honduras, Nicaragua, Costa Rica,** and **Panama,** the largest of which have an area of little more than half that of Great Britain, have a surface similar on the whole to that of southern Mexico. Their chief products are coffee (for which soil and climate are excellently adapted) and tobacco. Communications, still very defective, are being improved, and concessions have been granted for railways to connect all the capitals, as well as for new lines to cross from ocean to ocean. Works have been begun on two inter-oceanic ship-canals, one in Nicaragua and one in Panama. The total length of the transit by the Nicaragua route would be 170 miles, but only 29 miles of canal would have to be excavated, the remainder of the distance belonging to Lake Nicaragua and rivers on different sides of it. The Panama canal is that which has now the best prospect of being completed (307*a*). It was begun by a French company floated in December 1880, but the works on it have more than once been stopped.

307*a*. Panama, which, till it declared its independence on November 4, 1903, formed part of Colombia, contains the only inter-oceanic railway in Central America, and this is the oldest

Mexico	470,000	Puebla	100,000
Leon	65,000	San Luis Potosi	85,000
Guadalajara	120,000		

inter-oceanic railway in the world. It is 47½ miles long, connects Colon or Aspinwall in the north with the town of Panama in the south, and was opened on January 28, 1855. A treaty between the new republic and the United States ratified on February 26, 1904, grants to the United States in perpetuity a monopoly for the construction, maintenance, and operation of canal or railway communication across the territory of the republic, and, with a view to the completion of the canal begun by the French company above mentioned, cedes to the United States a zone 10 miles wide, containing the route of this canal. The canal is expected to be completed by 1915.

308. The west coast of Central America is *cliffy*, and has the best harbours. The eastern shores are mostly low and swampy, and the harbours generally encumbered by bars. It is on this side, however, that most of the trade is carried on, the British Isles and the eastern ports of the United States being the parts of the world that have the bulk of that trade. The best seaport on that side is Balize, or Belize, the port of **British Honduras**, a Crown colony, with an area about equal to that of the counties of York and Durham taken together, and a population of about 38,000. It is the place of export of a great deal of **mahogany** and other cabinet woods, together with logwood and other dye-woods. The chief of the other ports on this side are Truxillo (Honduras), Bluefields, and Greytown (Nicaragua), Puerto Limon (Costa Rica). From some of these ports there is a rapidly growing trade in fruit (bananas, &c.) with the United States and the United Kingdom.

THE WEST INDIES.

309. This group of islands has an aggregate **area** not much larger than that of Great Britain, with a population of about 5,000,000, the two largest islands, Cuba and Haiti, being very thinly peopled. The larger islands, in the west, are known as the **Greater Antilles**; the smaller islands, in the east, as the **Lesser Antilles.**

310. The Bahamas are flat coral islands. Nearly all the other islands, except Barbados, are mountainous, and the mountains and higher parts of the surface generally are covered

with dense forests, which yield cabinet and dye-woods to commerce. The navigation both of the Atlantic and the Caribbean Sea is sometimes rendered dangerous by hurricanes in the period from July to October, and especially in September, when the sea is at its hottest and the winds are very variable.

311. The **population** is almost entirely descended from natives of other continents, the aboriginal population having been nearly exterminated within a short period after the discovery of the group by Columbus. A very large proportion of the inhabitants are the descendants of **negroes**, originally slaves, but now all free. **Indian** and **Chinese coolies** have been introduced as labourers since the liberation of the negroes, on account of the unwillingness of free negroes to work. The rapid increase of the negro population is, however, gradually doing away with the difficulty of obtaining plantation and other labourers.

312. With the exception of Cuba, which forms a republic under the protection of the United States, and Haiti, which is divided between the **Republic** of **Haiti**, in the west, and that of **San Domingo**, in the east, these islands are now divided between Great Britain, France, and Denmark. In 1898 Spain was compelled to renounce her possessions after a war with the United States.

312*a*. **Cuba.**—The most populous part of this island is in the west, where on the north coast stands Havana, the capital of the island, and the only large town in the whole archipelago. It is situated on a fine bay, and has an excellent natural harbour. Its chief plantation products are **sugar** and **tobacco.** In the east of Cuba valuable iron mines are worked in the neighbourhood of the port of Santiago de Cuba (south coast). Other workable minerals exist in the same mountainous district (see also 54).

312*b*. Puerto Rico, or Porto Rico, is the sole West Indian possession of the United States. Sugar and coffee are its principal products. It now enjoys free trade with the United States, which regards all shipping between this island and the States as coasting trade, and hence restricts it to ships of the United States.

Havana	320,000

313. **British Islands**: (1.) **Jamaica**, an island about two-thirds of the size of Yorkshire, south of eastern Cuba; (2.) **the Bahamas**; (3.) **the Leeward Islands**—the Virgin Islands (part of the group), St. Christopher (St. Kitts), Nevis, Antigua, Montserrat, and Dominica; (4.) **the Windward Islands**—St. Lucia, St. Vincent, Grenada (with the Grenadines); (5.) **Barbados**; (6.) **Trinidad** and **Tobago**, the former a considerable island lying opposite the delta of the Orinoco, the latter further to the north-east.

Formerly **sugar** was the most important export in nearly all these islands, but recently this has suffered greatly from the competition of beet-sugar, and **cacao** and **spices** are now the chief products of Grenada, and since 1885 **fresh fruits** (oranges, bananas, coco-nuts, &c., sent mainly to the United States,[1] have risen to the first place among the exports of Jamaica. Cacao is also largely grown in Trinidad, Dominica, and St. Lucia; **Montserrat** is well known for its **lime-juice**; and Antigua has a large trade in pine-apples. **Asphalt**, obtained from a large lake in the interior of Trinidad, is also a large export.

314. **French Islands**: **Guadeloupe** and **Martinique**, with some smaller islands, and half of St. Martin.

Dutch Islands: The three considerable islands of **Curaçao**, **Aruba**, and **Bonaire** (or Buen Ayre), off the north coast of Venezuela, together with two smaller islands, and half of **St. Martin**, among the British and Leeward Islands.

Danish Islands: **Santa Cruz**, **St. Thomas**, and one or two others of the Virgin group.

SOUTH AMERICA.

315. This, the smaller half of the New World, has at least **four-fifths of its area within** the **tropics**, and hence yields chiefly tropical products; but here as elsewhere the temperate area,

[1] There is now also a large export of bananas from Jamaica to the United Kingdom under a contract by which in return for an annual subsidy of £40,000 (half paid by the government of the United Kingdom, half by that of the colony), an English shipping firm has undertaken to carry to this country 20,000 bunches of bananas every fortnight.

relatively to its extent, furnishes a greater abundance of commercial commodities. In this part of the continent the rate of increase in the production of such commodities, and the development of means of distribution for them, are now most rapid. Here also European immigration is most constant.

316. The lofty chains of the Andes, on the west side of the continent, forms an important climatic barrier. In the latitudes in which the trade winds prevail (6*a*) they arrest the moisture-laden winds from the Atlantic, draining the moisture out of winds that had already been partly drained in their course over the continent further east (6*b*). The western slopes of these mountains, on the other hand, receive in these latitudes no rain from the Atlantic, and as far as 33° S. little or none from the Pacific.

317. Some of the mighty rivers to the east of the Andes form excellent **waterways.** The **Orinoco,** in the north of the continent, is navigable for steamers continuously for nearly a thousand miles. The **Amazon** is navigable without interruption to the base of the Andes, a distance of 2600 miles from its mouth, and 50,000 miles of navigation are afforded by the main stream and its tributaries. Many of these tributaries, however, have their navigable course greatly obstructed by falls and rapids; so, for example, the Xingu and Tapajos on the right bank, the upper Rio Negro on the left. The **Madeira** is continuously navigable for steamers to beyond $8\frac{1}{2}$° S., but there then follows a series of falls and rapids extending over a distance of 200 miles, interrupting the communication between Bolivia and Brazil. The **Araguaya** and **Tocantins,** which enter the Rio Pará (a southern arm of the Amazon) in one stream, both have their navigation more or less obstructed in the same way. Falls and rapids likewise beset the course of the Rio São Francisco, and those of all the other rivers of the mountainous part of eastern Brazil, including that of the middle Parana. The inland waterway which is already of most importance and likely to remain most useful to commerce in the future, is that from north to south formed by the **upper Paraguay and the lower Parana,** a waterway, which is uninterrupted from near the source of the former river, and which, like the Mississippi, brings hot and temperate climates into direct communication (**294**). Its chief

drawback is the extreme shallowness of its estuary, the Rio de la Plata, or River Plate (327*c*).

318. The **population** is still very scanty, probably not more than 35,000,000. Whites of pure blood form only from two to three-tenths of the whole, negroes about one-tenth, and the remainder are either native Indians or people of mixed race; so that on the whole the Indian element still largely predominates. The white population in Brazil is of Portuguese origin, and Portuguese is there the official language; but elsewhere, except in Guiana, the whites are mainly of Spanish descent, and Spanish is the official language.

SOUTH AMERICAN STATES.

319. **BRAZIL**, formerly an empire, but proclaimed a republic by the name of the United States of Brazil in November 1889. In size it is the rival of the United States of America and Canada. The area already turned to account for agriculture, chiefly within a hundred miles of the coast, is very limited. Even the area which travellers in Brazil deem it possible to bring under cultivation at some future time is but a small fraction of the whole. The equatorial **valley of the Amazon** is filled with **dense forests.** Close to the coast that trends in a south-easterly direction, stretch ranges of mountains which cut off the Atlantic moisture from the region behind (6*b*). This region is made up mainly of **low tablelands (campos) with a sterile soil.** North of about 20° S., that is, throughout the broader part of the country south of the forest, these campos are considered fit for nothing but pasture. There remains nevertheless an area in the south—small, indeed, compared with the extent of the empire, but yet between four and five times the size of Great Britain—in which there are many fertile districts still unsettled, and a considerable extent of these in latitudes fit for European settlers. Formerly the practice of slavery deterred free immigrants from settling in those provinces in which the institution was most firmly established (those growing tropical products), but in 1888 it was entirely abolished. Immigrants, chiefly Italian and Portuguese, are now arriving in

thousands. Coffee (37) makes up nearly three-fourths of the value of Brazilian exports, the next in value being rubber (from the Amazon valley), sugar, tobacco, cotton, and cacao. **Railways** are so far most numerous in the coffee region of Brazil (22°–24° S.). Of the projected railways one of the most important is that designed to avoid the rapids of the Madeira (317), but for which steamers would be able to ascend to the base of the Bolivian tableland.

Chief Towns.—Capital, Rio Janeiro, also the chief seaport, having an admirable natural harbour. It is the principal outlet for the coffee region, which has another outlet in Santos, further south. Bahia, or San Salvador, and Pernambuco are the seaports of the region producing sugar, cotton, and tobacco; Pará, Maranhão, or Maranham, and Ceará, those of the region yielding forest products—rubber, Brazil nuts, cabinet and dye-woods, together with cacao and sugar. The ports of the temperate region producing animal products (hides, &c.) are Rio Grande do Sul, Pelotas, and Porto Alegre, all of which are accessible only to vessels of small draught (under 11 feet), on account of a bar at the entrance to the shallow lake on which they stand.

320. **COLONIAL GUIANA** consists of three portions—one **British**, about equal to Great Britain in size; one **Dutch** (Surinam); and one **French** (Cayenne). Cultivation of plantation products (chiefly **sugar-cane**) is almost confined to the British and Dutch colonies, and in these to a narrow strip of lowlands along the coast and the river-banks, a strip partly below sea-level, and hence protected by embankments. Demerara is the province of British Guiana in which most of the sugar is grown. The labourers are negroes, mulattoes, and coolies. In all the colonies gold is known to exist. In **British Guiana** a rich **goldfield** lies on the banks of the Cuyuni in the west, but long remained unworked on account of a boundary dispute with Venezuela. This dispute was at last settled in 1899 by an arbitration award, which divided the goldfield between the two countries. **Cayenne** is used by the French as a place of deportation for convicts.

Rio Janeiro	1,000,000	Pará	50,000
Bahia	290,000	Porto Alegre	53,000
Pernambuco	150,000		

321. **VENEZUELA**, a republic in the north of the continent, consisting chiefly of the basin of the Orinoco (317). People of Spanish, Indian, and negro descent, all now free, make up the bulk of the population; and the majority are settled on a small area of highland valleys in the north-west, where branches of the Andes strike north-eastwards, and then eastwards parallel to the coast. The staple product is **coffee**; but cacao, cotton, tobacco, sugar, and coco-nuts, besides other tropical products, are grown. The best coffee is grown at an altitude of 2000 to 5000 feet. The cacao is grown on the low grounds, and is of excellent quality. **Gold** in the east and **copper** in the west are important minerals. The plains (llanos) of the Orinoco are devoted to cattle and horse rearing, an industry at one time much more flourishing than now. The chief inland towns are Carácas, the capital, and Valencia, which are situated in inland valleys from 1800 to 3000 feet in height, and are connected by rail with their respective seaports, La Guaira and Porto (Puerto) Cabello. Ciudad Bolivar, on the Orinoco, the navigation of which is free to all nations, may also be ranked as a seaport, being accessible to sea-going vessels.

322. **COLOMBIA**, a republic with a similar population to that of Venezuela, settled chiefly in the upper parts of the valleys of the Cauca and Magdalena, where, in consequence of the high elevation, the grains of temperate climates are grown. In the lowlands, on the other hand, rice is grown; and it is so generally eaten by the people that a deficiency of this commodity has to be made up for by import. The **mineral wealth** is great, and gold, silver, and precious stones take a leading place among the exports, which include also rubber and plantation products similar to those of Venezuela (sugar, grown both on the Pacific and Atlantic seaboards; excellent cacao, grown in the Cauca valley and at the base of the Sierra Nevada de Santa Marta; coffee, &c.). The great channel of communication is the Magdalena, which is navigable for steamers without interruption to Honda (about 5° N.), but on account of a bar at its mouth is connected by rail with the seaports of Sabanilla and Cartagena (with the latter also by canal).

Carácas	**70,000**	**Valencia**	**40,000**

Bogotá, the capital, is within five degrees of the equator, bu in virtue of its situation at the height of 8000 feet above sea level, enjoys a healthy climate, with a temperature like that of ɛ perpetual spring. (See also paragraph 307*a*.)

323. **ECUADOR**, a republic chiefly south of the equator, bu which owes its name to the fact that its capital, Quito, is almos under that line; population, 1,200,000. Quito lies, like Bogotá between two chains of the Andes, its elevation being betweeı 9000 and 10,000 feet. The only seaport is Guayaquil, whencє cacao, grown on the western lowlands in greater quantity thaı anywhere else, is exported. To Ecuador belong also thє **Galápagos**, or Turtle Islands, on or near the equator, about 70(miles to the west.

324. **PERU**, a republic lying to the south of Ecuador, with a population of about 3,000,000, at least half of whom are purє Indians. It is composed of **three zones**—(1.) A rainless **coast strip** (316), fertilised only here and there by rivers from thє Andes, which afford the means of irrigation for sugar and cottoı plantations tended by Chinese coolies. (2.) **The sierra**, or valleys and tablelands of the Andes. On one of the tablelands (partly in Bolivia) lies Lake Titicaca, the largest lake in South America, at the height of 12,600 feet above the sea. At this height eveı barley seldom ripens, and the only regular food-grain is derived from a native plant called **quinoa** (wholly unlike our cereals). (3.) **The Montaña**, the region on the eastern slopes of thє Andes, containing the headwaters of the Amazon, a regioı largely covered with impenetrable forests, of which the most valuable product is rubber. Cotton, coffee, and coca [1] plantations have been started here with success, and there is a large **manufacture** of cocaine.

324*a*. The chief **exports** are **sugar, cotton, nitrate of soda** (64) **copper, silver**, and llama, vicuña and sheep's **wool**; the first threє derived from the coast-strip, the others from the sierra. Apart from nitrate of soda, or cubic nitre as it is also called, the mineral wealth for which Peru (including Bolivia or Upper Peru) was

Bogotá	120,000	Guayaquil	80,00(
Quito	80,000		

[1] *Not to be confounded with cocoa or cacao.*

long ago renowned sank for a time into insignificance, but the laying of railways has recently conferred renewed importance on old mines (for example, the silver mines of Cerro de Pasco). Among the railways already in existence in Peru are two of the most remarkable in the world, those namely by which the tablelands of the Andes are reached. One of these is the **Lima-Oroya railway**, which attains in its passage through the western chain of the Andes a height of 15,600 feet. This railway it is proposed to continue northwards to Cerro de Pasco. The other Andes railway is from the southern seaport of **Mollendo to Puno** on Lake Titicaca.

The **capital** of the country is Lima, an unhealthy city on the coast-strip, a few miles from its port, Callao.

325. **BOLIVIA**,[1] a republic, now entirely inland, occupying the broadest part of the tableland of the Andes, with a region on the east similar to the montaña of Peru. Fully half the population consists of Indians, and of these probably at least one-half are "uncivilised." The communications of Bolivia with Brazil (319) have already been referred to. The **capital** of the country is La Paz on the tableland of Lake Titicaca. The silver-mines of **Potosi**, which made Peru so valuable a possession to the Spaniards, belong to this state, and are still productive, though in a greatly diminished degree. Silver, however, now chiefly mined at Huanchaca, to the south-west of Potosi, forms the chief export, and among other exports of importance are tin, copper, rubber, and coca.

326. **CHILE**, a republic possessing the whole of the coast-strip south of Peru, together with the islands that fringe the coast, including part of Tierra del Fuego and both sides of the Straits of Magellan except in the extreme east. The northern portion of the country is a continuation of the desert strip on the coast of Peru, and is valuable solely for its mineral products—**guano** (obtained near the coast from the northern frontier to about 21½° S.), **nitrate of soda** (obtained in the same latitudes, but further inland), gold, silver, and copper. **Copper** is even more abundant further south, along the base of the

Lima	**140,000**	**La Paz**	**80,000**

[1] **Population under 2,000,000.**

Andes, north and south of Coquimbo. **Silver** is also found more abundantly to the south of Copiapo. The middle portion of the territory (between about 33° and 38° S.) contains the bulk of the population.[1] The agricultural products are mainly **wheat, barley, and southern fruits**—similar, in fact, to those of Spain, which has a climate resembling that of the more populous parts of Chile. Notwithstanding that whites predominate in this republic (instead of Indians and half-breeds, as in most of the others), agriculture here also is generally in a backward condition, except in some parts of the north, where there are some **admirable irrigation works.** In the more thickly peopled part of the country there are several hundred miles of railway.

326*a*. Next to minerals wheat and other agricultural produce form the chief exports. The leading imports are manufactured articles, coal, and iron. The United Kingdom receives the bulk of the exports, and takes the first place in the import trade, Germany, France, and the United States following. There is a considerable import trade in cattle and other animals from the Argentine Republic across the passes of the Andes, but the export trade by these routes is very scanty. The passes chiefly used are those near the latitude of Santiago, the Portillo and the Uspallata Passes, the former nearly 14,000 feet in height, the latter about 500 feet less.

326*b*. The **Straits of Magellan** are stormy and washed by strong tides, and hence difficult of navigation, so that sailing-vessels still prefer the equally stormy, but for them less dangerous, route round **Cape Horn**, in the south of Tierra del Fuego.

326*c*. **Chief Towns.**—Capital, Santiago. Chief ports.—Valparaiso, the port of Santiago; Iquique, further north, the chief place of export of nitrate of soda and guano.

327. **THE ARGENTINE REPUBLIC** comprises a territory of more than a million square miles, with a relatively small population.[2] This territory consists **mainly of a vast plain** sloping down to the Atlantic from the Andes, and other lofty

Santiago	330,000	Valparaiso	180,000

[1] Population rather more than 3,000,000.
[2] Under 5,000,000.

mountains in the west and north-west. It extends from within the tropics to the south of the continent, embracing the eastern half of Tierra del Fuego, and thus includes a great variety of climate. The districts in which the population is most considerable and most rapidly increasing are chiefly those in the neighbourhood of the estuary of La Plata and along the right bank of the lower Parana, where there are not only the greatest facilities for commerce, but where also the climate is most favourable to production and best suited to people of European stock and to European domestic animals (29). The **provinces** to which this description applies are **Buenos Aires**, south of the estuary; **Santa Fé**, on the right bank of the lower Parana; **Cordoba**, to the west of Santa Fé; and **Entre Rios**, between the rivers Parana and Uruguay. The climate here is that of the warmer temperate latitudes, generally with an ample rainfall. Towards the interior the rainfall generally diminishes, and irrigation becomes necessary for cultivation about 63° or 64° W. Of late years the Argentine Republic has been undergoing a **rapid development** similar to that of the United States and the north-west of Canada.

327*a*. The natural facilities for inland commerce afforded by the Paraguay and lower Parana are mentioned in paragraph **317**. Sea-going vessels drawing nearly 16 feet can ascend the Parana to Rosario.[1] The **Parana** is likewise navigable for steamers above the confluence of the Paraguay to the place where the river first touches Argentine territory. Steamers can ascend the Uruguay River on the eastern frontier without interruption to the falls which occur in about $31\frac{1}{2}$° S. (at the Uruguayan town of Salto), and sea-going vessels of 14 or 15 feet draught can reach the Uruguayan town of Paysandu. **Patagonia,** the territory south of the Rio Negro, is mainly a stony desert, but recent explorations have shown that it embraces a considerable amount of fertile land along the base of the Andes. On the coast of this territory there has long been a Welsh colony at **Chubut** in lat. 43°, where, among other things, wheat is grown.

As in the United States, **railways** are being rapidly extended to promote the commerce on which the immigration depends.

[1] Great improvements are now being carried out with a view to making this port available for vessels of 21 feet.

This republic is, in fact, the part of South America in which railway construction has been, and still is, most active. Unfortunately, these railways are on different gauges. Nearly all those which radiate from Buenos Aires are on the gauge of 5 feet 6 inches, but some of those which radiate from Rosario and nearly all starting from Santa Fé are on the metre gauge. Those in the provinces between the Parana and Uruguay are on the gauge of 4 feet 8½ inches, but this difference is not so serious as the Parana is not bridged or likely to be bridged.

327*b*. **Foreign Commerce.**—Animal products of one kind or another, namely, wool, frozen mutton, ox-hides and sheep-skins, salted and hung beef, and tallow, make up a large part of the value. The wheat export is mostly very large, but is variable in amount in accordance with the great vicissitudes to which this crop is subject through drought, frosts, floods, and the ravages of locusts. Maize and linseed are also largely exported. The principal imports are iron and steel and wares made from them, cottons, woollens, sacking, and other manufactured articles, wines and spirits, coal, sugar, coffee, olive-oil, and timber. The United Kingdom, the United States, Italy, and Germany take the lead in supplying the imports. France, Germany, and Belgium were formerly at the head of the countries receiving the exports, these countries taking the bulk of Argentine wool, but the great development of the exports of wheat, maize, and frozen mutton, linseed, and hides has raised Great Britain to the first place.

327*c*. **Chief Towns.**—**Capital**, Buenos Aires, which stands on the River Plate, and is at the same time the chief seaport. Great harbour-works have provided this formerly very inconvenient port with docks, the entrance to which varies from 21 to 26 feet in depth according to the state of the tide. These works have deprived Ensenada, the port of La Plata, lower down the estuary, of a good deal of its trade; but a growing trade is carried on at Bahia Blanca, in the south of the province of Buenos Aires, where there is a minimum depth of 26 feet alongside of the pier. Rosario (327*a*) is now the leading wheat-port. **Inland Towns.**—Cordoba, 160 miles west of Santa

Buenos Aires	1,400,000	Cordoba	100,000
Rosario	180,000		

Fé; Tucuman, in a sugar-cane growing province in the north, San Juan and Mendoza, at the base of the Andes.

328. **URUGUAY**, a republic lying between the estuary of the La Plata and Brazil, has a similar surface, climate, and population,[1] and similar industries, to the neighbouring provinces of the Argentine Republic (9). Among the railways there is one avoiding the rapids of the Uruguay River above Salto (327*a*), and there is one in progress connecting Paysandu with the capital. Having a greater rainfall on the whole than the more populous districts of the Argentine Republic, Uruguay rears relatively to area more **cattle** (29) than the latter country, and of the 1,100,000 animals that were annually slaughtered in the two republics for the making of preparations of meat on the average of the ten years 1879–88, about 60 per cent. were slaughtered in Uruguay. This industry has made the small towns of Fray Bentos and Paysandu, on the Uruguay, well known throughout Europe. Among the countries sharing in the commerce of Uruguay the United Kingdom has the first place in supplying the imports. The capital of Uruguay is Montevideo, which has an excellent harbour.

329. **PARAGUAY**, an inland republic lying mainly between the Paraguay and Parana rivers, with a very sparse population,[2] chiefly of native Indians. Capital, Asuncion. Its chief export products are the so-called Paraguay tea, or maté, and oranges. Tobacco, timber, and skins are also exported.

330. **THE FALKLAND ISLANDS**, situated to the east of the Straits of Magellan, belong to the **British**. They have a damp foggy climate, and are largely covered with peat, but are inhabited by a small number of settlers engaged in the rearing of sheep and cattle. A considerable export trade in frozen mutton is carried on. The islands are frequently visited for repairs and supplies by vessels that have made the passage round Cape Horn.

AUSTRALASIA AND POLYNESIA.

331. **AUSTRALIA.**—This vast island or continent has an area of nearly three millions of square miles, and is accordingly

Tucuman	80,000	Montevideo . . .	350,000

[1] Numbering about 1,000,000. [2] About 600,000.

almost exactly equal in extent to the United States of North America, exclusive of the territory of Alaska. A good deal more than one-third of it lies within the torrid zone, but the great bulk of its population belongs to the region outside of that belt. Most of the inhabitants, moreover, are, in consequence of the nature of the climate, found within two or three hundred miles of the coast.

332. The **coast-line** of this vast island is remarkable for its long stretches of uniform character, without inlets that can be made use of by shipping even for shelter. The principal exceptions to this character are on the eastern side and in some parts of the north-west.

333. To the north of Hervey Bay, on the east coast, numerous **coral-reefs** rise to the surface of the water, making the seas somewhat dangerous to shipping, and about one degree north of the Tropic of Capricorn there begins a series of coral-reefs such as are to be seen nowhere else in the world over the same extent of sea. These form together what is known as the **Great Barrier Reef**, which extends for a distance of about 1200 miles, advancing into the latitude of Torres Strait, which it nearly closes. The reef, however, is not continuous. It is broken up by many deep channels, some of which are narrow, others from ten to twelve miles wide. To seamen these channels are of great importance, since they allow of a choice of routes between the seaports in the east of Australia and Torres Strait. The route within the Barrier Reef along the Australian coast has the advantage of a calm and beautiful sea owing to the protection which the reef affords, and is that preferred by steamers, whose course can be more easily controlled than that of sailing-vessels. But this route is one that requires careful navigation, and above all at night, when the reef cannot be made out at a greater distance than half a mile.

334. Even to the west of the Barrier Reef the **navigation of Torres Strait** has been made difficult by the coral builders. The hundred miles of sea between Cape York and the south coast of New Guinea, besides being studded with numerous small islands, are crowded with coral-reefs and sandbanks, which leave only one or two safe channels for shipping between them. The channel most used is that which lies immediately north of

the **Prince of Wales Group** of islands, on one of which, named **Thursday Island**, there is a much-frequented calling-station for shipping.

335. The **surface** of Australia is for the most part fairly level, consisting either of plains or plateaux of great extent. In the east, however, a continuous range of highlands runs at no great distance from the coast from north to south, and then bends with the coast westwards, terminating in the south-west of the colony of Victoria. The general name of **Dividing Range** is given to the whole of this series, since it separates the low-lying coast valleys and small plains from the broad plains of the interior. In the south-east, where the Dividing Range attains its highest elevation (with peaks above 7000 feet in height), it forms a regular mountain chain known by the name of the **Australian Alps**.

336. The Dividing Range has been the chief obstacle in the establishment of **railway communication** with the interior—an obstacle which has been overcome in some places, especially in New South Wales (348), only by great engineering skill. Notwithstanding such difficulties, however, all the colonies have made railways from their capitals and chief seaports to the principal mining centres, and along the routes by which the produce of the interior is most easily collected; and in 1889 the last link in the series of railways connecting all the Australasian capitals from Adelaide to Brisbane was approaching completion.

336*a*. Unfortunately different gauges have been adopted in the construction of the railways. Those of Victoria and some of those of South Australia are on the gauge of 5 feet 3 inches, those of New South Wales on that of 4 feet 8½ inches, and those of the other states on that of 3 feet 6 inches.

337. The plateau in the east of Australia attains at its widest a breadth of rather more than 100 miles, and gradually sinks on the west to low level plains, which occupy the greater part of the middle of Australia. The western half of the island, so far as it has been explored, consists mainly of a low plateau about 1000 feet in height or less.

338. **Climate.**—The series of highlands above described is appropriately called the Dividing Range, not only on account

of the contrast presented by the surface on different sides of it, but also because of the influence which it has upon the climate. The chief rain-bearing winds of Australia blow more or less from the east, since the island lies mostly in latitudes in which the south-east trade-wind prevails (6*a*), and the causes which give rise to that wind have a great effect on the direction of the air-currents even on the land. Hence, in the western half of the island, the prevailing tendency of the winds is seawards, and the period of the year in which this tendency is mostly overpowered is the summer, when the excessive heat of the interior brings about great rarefaction of the air, but at the same time tends to prevent any vapour that may be brought from the sea from being condensed into rain. The highlands on the east, however, have their usual effect on sea-borne vapours, and their eastern slopes are copiously watered at all seasons of the year, but in the tropical and sub-tropical latitudes chiefly in summer (6*a*, 6*b*). The interior plains and plateaux, on the other hand, receive less and less rain the further they are distant from the sea, and almost all parts which are more than 200 miles from the coast receive much less rain in the course of the year than the driest parts of England (76). This rain, too, falls in latitudes in which the heat and consequent evaporation are much greater than in the British Isles, so that in summer the ground is everywhere parched and cracked and the grass withered, and none but winter crops can be grown, even where the rainfall is sufficient to grow crops at all. Even where the average rainfall is adequate for the crops usually grown, and for the wants of the live-stock reared, it is in many parts very precarious, years of flood alternating with years of drought, leading to great variations in the yield of the crops, and the number of sheep and cattle that can be reared on a given area.

339. **Lakes and Rivers.**—The nature of the climate of Australia explains that of the Australian rivers. Most of those which enter the sea on the east and south-east of the Dividing Range are comparatively short, but are generally well supplied with water all the year round. They vary greatly in their depth according as the weather is dry or rainy, and many of them are apt in places to overflow their banks. Many of them are navigable for a shorter or longer distance up; but they bring

down so much sediment from the neighbouring highlands in which they take their rise, or from which they derive their feeders, that bars are formed in many cases at their mouths, and the entrance of large vessels thus prevented or impeded.

339*a*. All the great rivers of Australia take their rise on the inner slopes of the tableland, and flow towards the west or south-west. Only one of these, the **Murray**, enters the sea by an independent mouth. Before entering the sea this river turns nearly due south and flows through a large shallow sheet of water called **Lake Alexandrina**, which communicates on the south with **Lake Albert**, and a long shallow lagoon known as the **Coorong**, separated from the sea by a broad line of sand-dunes. The longest tributaries of the Murray are those which it receives on its right bank, the **Murrumbidgee** and the **Darling**, the former of which receives on the right another great tributary, the **Lachlan**.

339*b*. All these rivers are poorly supplied with water in proportion to their length, but yet they are navigable by steamers of light draught for a long distance into the interior. In ordinary circumstances the Murray can be ascended as high as Albury, 1700 miles from the mouth, the point where the river is crossed by the railway from Melbourne to Sydney. Except in dry seasons the Murrumbidgee can be navigated up to a point about a degree further east than Albury, and the Darling is navigable at times up to the confluence of the Bogan, 1000 miles above the point where it joins the Murray. Unfortunately, however, this river navigation cannot be continued into the sea. The line of sand-dunes which separates the Coorong from the sea is continued in the form of a bar across the mouth of the Murray, where it leaves Lake Alexandrina, so that goods must be laid down or taken up at some point in the course of the river and carried the rest of the distance by land. Of the other long rivers which are to be seen on maps traversing the plains in the interior of Australia, the greater number are hardly rivers at all in the proper sense of the term. They are merely watercourses which may be filled at times with running water, but which are often empty except for a few days in the year. They are useful, however, for irrigation (6*c*).

340. **Vegetation.**—On the tableland and plains of the interior

an Australian forest is open and easily traversed either by a horseman or by carriages, and leaves plenty of space for grass and herbage on which sheep may be pastured. Such is the general character of the Australian **bush.** The forests become thinner and thinner the scantier the rainfall. In many of the more arid parts large stretches of ground are occupied by dense masses of low bushes difficult to penetrate and difficult to destroy, these patches being well known as "**scrub.**"

341. **People.**—The **native Australians** belong to a very low type of humanity, are few in numbers, and appear to be fast dying out. The first inhabitants sent from the British Isles to Australia were convicts, and the first ship containing convicts sailed in 1787, and arrived at Botany Bay, in New South Wales, early in 1788. Soon **free settlers** began to arrive (9), and in course of time five separate colonies were founded on the mainland of Australia, and other two on Tasmania and New Zealand. These were mainly from the British Isles, but there is a large proportion of Germans also. Chinese and Polynesians have been introduced into the tropical parts of Australia, the Polynesians being chiefly employed in Queensland as labourers on the sugar plantations; but under the legislation of the Commonwealth no Pacific Islanders are allowed to enter Australia after March 31, 1904, or are to be allowed to remain there after the end of 1906.

342. THE AUSTRALIAN STATES AND NEW ZEALAND.—Area, Population, and Products :—

States, &c.	Area in thousands of square miles.	Ratio to Great Britain.	Population in thousands.		Increase per cent. on 1871.	Number per 100 persons living in 1911-2.		
			1871.	1911.		Sheep.	Cattle.	Acres under crop.
Victoria	88	1	732	1,316	80	1,017	124	267
New South Wales .	310	3½	504	1,648	227	2,674	143	217
Queensland . . .	668	7½	120	606	405	3,334	826	85
South Australia .	903	10	186	409	122	1,476	96	709
N. Territory . .	...	...	...	3	...	1,570	1,385	312
Western Australia	976	11	25	282	1,032	1,840	294	365
Tasmania . . .	26	¼	102	191	87	942	114	140
Commonwealth .	3,071	33	1,669	4,455	167	2,036	263	265
New Zealand . .	104	1¼	256	1,008[1]	294	2,407	200	1,602

[1] Exclusive of Maori (a native race).

342*a*. The Australian Commonwealth was constituted under an act of the Imperial Parliament passed in 1900, and was proclaimed at Sydney on January 1, 1901. The colonies above mentioned, except the colony of New Zealand, now form the six original states of this Commonwealth, which among other powers has the right to pass laws regulating trade and commerce with other countries and among the states, but subject to the provisos that uniform customs-duties shall be imposed, and that trade shall be free within the Commonwealth; laws regulating taxation, but so as not to discriminate between states, or parts of states; laws as to naval and military defence, including the control of railways for such purposes, railway construction and extension, &c. The legislative authority is vested in a parliament of two houses, namely, the Senate, composed of six representatives of each state directly elected by the people of each state voting as one electorate (except Queensland), and the House of Representatives, composed of members also directly chosen by the people in proportion to the number of the inhabitants, but so that the total is as nearly as possible double the total number of senators.

342*b*. Under the Commonwealth Act it was provided that the seat of government of the Commonwealth should be in New South Wales at some point more than 100 miles from Sydney. The seat of the capital has now been fixed at Canberra in the Dividing Range rather more than 200 miles south-west of Sydney, and the Commonwealth is constructing a railway about 123 miles long to connect this site with a new harbour on Jervis Bay.

343. With the *exception of* the *minerals* the commercial products of Australia are mainly derived from animals and plants introduced by the European settlers. The most valuable of the introduced animals is the sheep, wool (30) holding at the lowest the second place in value among the objects of production in all the colonies. No part of the world has shown itself better suited for the production of fine (merino) wool than the treeless grassy plains with a saline soil bordering the Murray River and its tributaries in Victoria and New South Wales.

343*a*. South Australia and Victoria are the two states of the mainland in which there is the greatest extent of land under cultivation relatively to population, and in both wheat is

the chief crop (17). South Australia at one time supplied wheat and flour to all the other states, but of late wheat cultivation has extended so much in Victoria that that state is now independent, and can even export some wheat itself. It is in these two states also that the **vine** receives most attention (25), but in this case Victoria takes the lead. **Sugar-cane** is cultivated in Queensland, and a variety has been found to succeed far beyond the tropics, and is grown even in New South Wales. Oranges are cultivated in New South Wales and other southern fruits in the irrigation colonies of Victoria and South Australia (24, 347, 350).

344. **Minerals.**—Hitherto the most important of the mineral treasures has been **gold**. It has been found more or less in all the states, but most abundantly in the three eastern states of Australia and in New Zealand. Victoria stands first in respect of the amount of gold produced, having raised gold since its first discovery in the colony, in 1851, to the value of upwards of £250,000,000, or about six times as much as any other state. The other minerals of commercial importance include **copper** in South Australia and New South Wales; **tin** in all the eastern states and Tasmania; **silver** in New South Wales; **coal** (59) in New South Wales (where the coalfields are estimated to have more than twice as great an extent as in the British Isles), and in less quantity in Queensland, Victoria, and Western Australia, as well as in New Zealand; and **oil-shale** (61) in New South Wales. **Ores of iron** are present in large quantity in almost all the states, but the expense of working is so great that they are little worked. Under the encouragement of Commonwealth bounties ironworks have, however, been started at Lithgow in the Blue Mountains west of Sydney, and it is proposed to start other large works in connection with the deposits of excellent ore at Iron Knob, 40 miles north of Spencer Gulf.

345. **External Commerce.**—The great feature of Australian commerce generally consists in the export of the staple productions of the different states mainly to the United Kingdom directly or indirectly, and the import of British manufactures (10) and the products of other countries, for the most part from Great Britain (79*g*, 80). The commodities thus dealt in may be despatched or received through other states than those from which they were originally sent, or in which they are finally consumed or used. Thus, much wool from New South Wales is

exported from Melbourne (Victoria); Tasmanian products are often sent for export to Melbourne, those of New Zealand to Sydney, and so forth; and these ports similarly supply the respective states with articles obtained from Europe, Asia, or America. Wool is the leading export of all the states as well as of New Zealand, and a large proportion of the whole is sent to London, where it is sold by auction (82*b*, 91*a*). There are now, however, auction sales of wool in all the large capitals of Australia, and an increasing proportion of wool is being sent direct to the mainland of Europe.

345*a*. In South Australia wool has a rival among the exports in wheat, in Tasmania in tin. In Victoria, Queensland, and New South Wales gold is the second export in aggregate value. New South Wales sends to the other states part of their supply of coal (344). The sugar-growing parts of Australia (343) furnish more or less sugar to the other parts, but large quantities of the sugar consumed in Australia and New Zealand are obtained from Mauritius, Fiji, Java, and elsewhere. Most of the tea consumed in Australia is derived directly from China. Indian tea is not yet much drunk.

346. All the states, and even the ports of the Kimberley district in the north of Western Australia, are now in regular **steam communication with Europe**. Different routes are followed, but most of the ships pass through the Suez Canal and along the south coast of Australia (11*c* and p. 251). Since 1872 Australia has been connected by **electric telegraph** with the rest of the world, through the completion of the overland line which crosses South Australia between Adelaide and Port Darwin, and is there connected with a line which passes under the sea to the Dutch island of Java. The cable from Vancouver to Queensland and New Zealand by Fanning and Norfolk islands was completed in November 1902 (12).

347. **THE SEPARATE STATES.—A. Victoria**, the smallest of the states on the mainland of Australia. It occupies the extreme south-east, and is separated from New South Wales mainly by the Murray River. The first permanent settlement on its territory was made towards the close of 1834. Till 1851 it was a dependency of New South Wales. A large part of the surface is mountainous. The **Australian Alps**, with their spurs,

fill the greater part of the eastern half of the state. West of these mountains the Dividing Range sinks in elevation, so that easy routes have been found for the railways laid north of Melbourne to the plains on the other side. The plains to the south of the Dividing Range, lying as they do on the moister side of the mountains (338), are well watered, in many places thickly covered with trees, and clothed with rich grasses, more suited for horses and cattle than for sheep. This is especially the character of **Gippsland**, the region to the south of the Australian Alps. In the north there is greater dearth of rain; nevertheless it is in this part of the state that the area under crops has been most rapidly increasing of late years, since the decline of the goldfields has caused so many people formerly engaged in mining to take to farming. In some years the rainfall even here is sufficient to allow of abundant crops being grown, but when the rains fail great loss follows to the cultivators. Hence, if farming is to be carried on regularly with success in this region, it can only be by **irrigation** (6*c*, 154*a*). In the north-west is the district called **Wimmera**, at present mainly a waterless desert, but containing a tract with an excellent soil bordering the Murray, on which large irrigation works now managed by a government trust have been carried out at Mildura. The area embraced by these works is a quarter of a million acres. Among the objects of cultivation will be grapes, including the raisin and currant grapes; oranges, figs, apricots, and peaches; plums, including plums for prunes; besides tobacco, fibre-plants, and other crops. Further south the plains are now being reclaimed for wheat cultivation by clearing them of mallee scrub, that is, thickets of a species of eucalyptus. The quality of the wheat is excellent, but the yield small and precarious.

347*a*. **Chief Towns.**—Capital and chief seaport, Melbourne, situated on the Yarra, a short distance above its mouth in Hobson's Bay, which is the name given to the upper part of Port Phillip Bay. This is a shallow sheet of water, affording a large extent of safe anchorage, but having a very narrow and difficult entrance. On a western arm of this bay stands the port of Geelong, a town that has long carried on the manufacture of

Melbourne, including suburbs within a 10-mile radius . about 600,000	Geelong 30,000

coarse woollens, which are exported to all the Australian colonies. In the interior, **Ballarat**, one of the earliest gold-mining centres; **Bendigo**,[1] another gold-mining town. On the Murray, **Echuca**, at the place where the river makes a sharp bend to the north-west, and where a railway on the same gauge as those of Victoria, crosses into New South Wales.

347*b*. Melbourne, owing to the structure of the country, serves as the port for all middle and eastern Victoria, and also for the north-west of the state, and for that part of New South Wales which makes use of the railway just mentioned. Several minor ports (Geelong, Warrnambool, Portland, Belfast) serve the south-west of the state, but the south-east is harbourless.

348.—B. **New South Wales**, so called by Captain Cook, who was reminded of the Wales of Great Britain by the appearance of the mountains which he saw from off the coast. It was in this state that the first settlement was founded in Australia (341), namely, on the magnificent natural harbour of Port Jackson, the harbour of Sydney, which has few rivals in the world either for beauty or convenience. Throughout this state the Dividing Range forms a more continuous barrier between the coast lowlands and the interior plains and tablelands than it does in Victoria, and it was long before the settlers found a way across the **Blue Mountains**, as the part of the Dividing Range behind Sydney is called. The interior of New South Wales generally is traversed by the chief tributaries of the Murray, and the treeless plains noted for their wool (343) lying to the north of that river are hence known as the **Riverina**. Most of the coast-strip of New South Wales is rather sterile, except here and there in the valley-bottoms. On the tableland within the Dividing Range there is a greater extent of good soil, but the rainfall ceases to be sufficient for agriculture within a distance of 150 or 200 miles from the coast.

Lord Howe's Islands and **Norfolk Island**, lying to the north-east of Sydney (the latter nearer the north-west point of New Zealand), and each containing a small number of inhabitants, are dependencies of New South Wales.

Ballarat	45,000	Bendigo	40,000

[1] Long called Sandhurst, but now once more by its original name.

348a. **Chief Towns.**—The capital and chief seaport is Sydney, on Port Jackson. At the head of the so-called Parramatta River, which is in reality a prolongation of the inlet of Port Jackson, stands Parramatta, in a district noted for its oranges. North of Sydney, on the estuary of the Hunter River, stands Newcastle, the chief coal-mining town and place of export of **coal** (344). The coal is now exported not only to all the other Australian states, but also to India, China, South America, and even San Francisco. *Bathurst, on the tableland behind Sydney, is the centre of the chief **wheat**-growing district of the state; Deniliquin, that of the pastures of the Riverina (348), and the starting-place of the railway by which the **wool** of that district is despatched for export to Melbourne; Broken Hill and Silverton, near the western frontier, the centre of a **silver**-yielding area said to be 10,000 square miles in extent; and Vegetable Creek, near the northern frontier, the chief **tin**-mining town. The silver-mining district is connected by a railway on the gauge of 3 feet 6 inches with Port Pirie in South Australia, and most of the ore is carried thither to be smelted.

348b. In this state also the structure of the country causes a large part of its commerce to be concentrated on one port, Sydney. The greater part of the tableland of New South Wales has its traffic brought down to Sydney by the railway across the Blue Mountains. The railway running south-west from Sydney to Victoria is separated from the coast by a minor range of hills. The north-east of New South Wales is, however, in large measure served by Newcastle, and the Illawarra coal-field in the south of the state outside the coast range has a port of its own in Wollongong.

349.—C. **Queensland**, the state to the north of New South Wales, once, like Victoria, a dependency of New South Wales, from which it was separated in 1859. It includes all the islands in the narrowest part of Torres Strait (334). The surface consists mainly of tableland above 1000 feet in height, and the district in the south-east known as the **Darling Downs**, on which are the finest pasture-grasses in the state, is about 2000 feet high, and thus has a comparatively cool climate for its situation, within five degrees of the Tropic of Capricorn. Extending far

Sydney, including suburbs, within a radius of 10 miles . 635,000

into the torrid zone, Queensland has more varied products than the more southern colonies. Among the tropical and sub-tropical products are cotton, arrowroot, ginger, coffee, fruits, but at present chiefly **sugar-cane**, which is largely grown in the low river-valleys on the coast (40, 345*a*). **Gold** is found at many places, but most abundantly round Charters Towers, near the Burdekin River, about the middle latitude of the state; in the famous Mt. Morgan mine to the south-west of Rockhampton; and round Gympie, on the Mary River, to the south of Hervey Bay in the south-east. **Tin** is found in two widely separate districts. One of these is on the tableland in the extreme south of the state, in a district adjoining the New South Wales tin-field, the centre of this district being Stanthorpe. The other, which is the more productive of the two, is round Herberton, near the east coast, in about 17½° S. lat. A rich gold and **copper** district lies round Cloncurry, in the west of the state, to the south of the Gulf of Carpentaria. Besides metals, Queensland is very rich in coal, but it has not, like New South Wales, the advantage of possessing a coal-field capable of being worked at a place that can be reached by large ocean-going vessels.

349*a*. **Chief Towns.**—**Capital**, Brisbane, 500 miles north of Sydney, situated on both sides of the Brisbane River, at the head of navigation for large sea-going vessels. Toowoomba, on the tableland to the west of Brisbane, is the chief town on the Darling Downs. Rockhampton, close to the Tropic of Capricorn, is at the head of navigation on the Fitzroy River. Townsville is the outlet for several large gold-fields, including that of Charters Towers, and also for a large area of pastoral country, so that it has become an important seaport though it has only an open anchorage. Brisbane, Rockhampton, and Townsville are the starting-points of **three lines of railway** which are being laid for a distance of from 300 to 500 miles into the better parts of the tableland, and hence mark the routes along which pastoral settlement is going on. All the towns mentioned are within a hundred miles of the east coast.

350. D. South Australia, to the west of Victoria and part of New South Wales, extending from the south coast of Australia to 26° S. It was founded in 1834 by an Act of the

* Brisbane, with suburbs, within 10-mile radius . 145,000

British Parliament, and, at the time of its foundation, was expected ultimately to include the territory belonging to Victoria. **Most of the inhabitants** of the colony are **confined to a district** *smaller than England, which is the only part of the state in temperate* latitudes that receives even a fair supply of rain, chiefly in winter. This district lies mainly to the east and north of Spencer Gulf and the Gulf of St. Vincent, where it is traversed by the Mount Lofty Range and the Flinders Range of mountains.

Irrigation is practised in the drier parts of the state. At Renmark, a district bordering on the Murray River—near which the Victorian irrigation works of Mildura are in progress (347)—similar works have been carried out. Irrigation by **artesian wells** (6*c*) is found to be practicable at several places in the neighbourhood of Lake Eyre, which is the lowest-lying part of Australia. Further north the telegraph-line passes through many well-grassed districts, and other grassy tracts are now known to border some of the river-courses of this region. Sheep-stations are already dotted here and there in this part of the state.

350*a*. Chief Towns.—Capital, Adelaide, on a plain near the east side of the Gulf of St. Vincent. It was founded in 1837, and named after the queen-consort of William IV. About seven miles from the city stands Port Adelaide, on a small inlet of the Gulf of St. Vincent. This port can be reached by tolerably large ships, but the largest vessels have to touch at quays on the gulf itself. Burra Burra, about a hundred miles north of Adelaide, is the seat of the chief inland copper-mines, but the principal copper-mines in the state are those of Moonta, on the peninsula between Spencer and St. Vincent Gulfs. From the neighbouring port some of the ore is shipped for smelting to Newcastle in New South Wales, in vessels which bring back coal to carry on smelting at the South Australian port. At the head of Spencer Gulf Port Augusta, and on its east side Port Pirie, both exporting wool and wheat, the latter also silver (348*a*).

350*b*. The **northern territory** of Australia, once part of South Australia, is now under the government of the Commonwealth. It is tropical, and the few inhabitants are mostly Chinese, many of whom are employed in gold and copper mines. Chief town, Palmerston, on Port Darwin (346).

Adelaide, including suburbs .	200,000

351.—**E. Western Australia**, the largest, but the least populous, of all the states. The vast deserts belonging to it will always cause it to be more imposing in extent than population, and even in the principal settled area, the district in the south-west, which receives autumn and winter rains brought by north-west winds, corresponding to the south-west winds of western Europe (6*a*), the population is very sparse. This is largely owing to the character of the country. Though there is much good soil, the fertile districts exist in scattered patches among large areas of poor and barren land, and the best land for European settlers is at a great distance from the only good harbour of the settled district, that of King George's Sound. Fine hard **timber** has always been an important product of this state. Since 1891 the population of this state, after long remaining nearly stationary, has begun to grow rapidly in consequence of the discovery of rich gold-fields (**Coolgardie, Kalgurli**, &c.) about 320 miles east-north-east of Perth, with which they are now connected by rail. The Murchison gold-field, of which the chief centre is Cue, lies in about 27½° S. In the south-west of the state on the Collie River are important deposits of coal, which is exported from Bunbury.

In the **northern parts** of Western Australia **pearl-fisheries** are carried on along the coast, a **gold-field** has been discovered in the interior, and good **pasture-lands** are now attracting settlers. The chief pastures are in Kimberley District, along the banks of the Fitzroy River, which flows into King Sound, about 17½° S.

The **capital** of the colony is Perth, on the Swan River, about twelve miles above its port, Fremantle, on the west coast. Albany, on King George's Sound, 260 miles distant from Perth, is the place where the first settlement was made on West Australian territory (in 1826).

352.—**F. Tasmania.**—This state consists of the island so called, together with the smaller islands adjacent. It is separated from Victoria by Bass Strait. Like Victoria and Queensland, the state was originally a dependency of New South Wales, and the first settlement upon it was a convict establishment formed in 1803, but it was made independent in 1825.

Perth, with suburbs . .	**35,000**

The **surface** of the main island is in great part high. A bleak tableland from 2000 to 3000 feet in height occupies the middle and a large part of the western half of the island, and is crowned by mountains and cleft by deep chasms through which issue the torrents which come to form the rivers of the west coast. To the east of this tableland lies a tolerably level and open district, which forms the great grazing-ground of the colony. Elsewhere the colonists have had to contend with land more or less heavily timbered. The climate is somewhat warmer than that of England, very suitable for all English crops, and specially well adapted for **fruits**. **Tin** and **gold** are important minerals, and coal-mines are also worked. The original natives, a race resembling the Australians, are now extinct.

Chief Towns.—Capital, Hobart, situated at the end of the island furthest from Australia, an inconvenience which is, however, outweighed by the excellence of its harbour, formed by the estuary of the Derwent. Launceston, the next town in size, is situated at the head of navigation on the Tamar, forty miles from the mouth of the estuary known as Port Dalrymple, on the side of the island nearest to Australia.

353. **NEW ZEALAND.**—This Dominion (as it is now styled), first settled in 1840, consists mainly of two large islands and one smaller one, situated at the distance of about 1000 miles from the nearest points of the south-east coast of Australia. The large islands are usually known as the **North** and the **South Island**, and are separated from each other by Cook Strait. The smaller island is called Stewart Island, and is separted from the South Island by Foveaux Strait.

Besides the main islands just mentioned New Zealand possesses several groups of small islands at the distance of from 150 to 350 miles. The principal are the **Chatham Islands** to the east, the **Auckland Islands** to the south, and the fertile group of the **Kermadec Islands** to the north-east.

353a. The **surface** of all the islands is highly mountainous. One long succession of mountains runs through both islands from the extreme south-west to the extreme north-east. It is interrupted by Cook Strait, and divided by gaps into a number

Hobart	25,000

of chains to which different names are given. In the South Island these mountains lie for the most part close by the west coast, and to the east about the middle of the island lie the **Canterbury Plains**, which extend for upwards of a hundred miles from north to south, with a varying breadth.

The **rivers** of New Zealand are numerous, but even the longer ones are for the most part unfit for navigation. Those of the South Island are mostly rapid torrents, fed in summer by the melting snows and glaciers of the Southern Alps.

353*b*. The **climate** of New Zealand is not characterised by the liability to droughts from which so much of Australia suffers. The winds that carry the most plentiful rains blow from the north-west, as in the south-west of Australia, and hence the western slopes of the mountains and the plains at their base are plentifully supplied with rain, whereas the plains on the east have a much more scanty rainfall. The **temperature**, especially in summer, resembles that of England more than that of Italy,[1] with which New Zealand corresponds in latitude. The New Zealand crops, therefore, are similar to those of England (the chief corn-crops, wheat and oats), and though grapes are grown in the open air in the northern districts, wine is rarely made from them. The high average yield of wheat in New Zealand is shown in paragraph **17**. The **minerals** of New Zealand are of great value, the chief being **gold** and **coal**. The gold is produced in several places, most abundantly at present in the Thames valley in the North Island; the coal, which is an excellent steam-coal, in the northern part of the western seaboard of the South Island.

353*c*. The principal exports from New Zealand are wool, frozen and other preserved meats (**11***f*), gold, kauri gum (**48**), butter, tallow, and wheat. Among the minor exports is New Zealand flax. The chief imports are manufactured articles, tea, and coal. More than three-fifths of the trade, both export and import, is carried on with the United Kingdom.[2]

[1] See the diagrams in illustration of this statement in the fifth edition of my "Handbook of Commercial Geography."

[2] In November 1903 New Zealand adopted a preferential tariff in favour of the mother country by dividing certain commodities into three classes, and raising the duties on these, or laying duties on them, against foreigners, but not against the mother country.

353*d*. **Chief Towns.** — Capital, Wellington, in the south of the North Island, on an inlet from Cook Strait, forming a safe and commodious harbour (Port Nicholson). It is about 1270 miles from Sydney. Auckland, on a narrow isthmus of the long peninsula of the North Island which runs out to the north-west, is a calling-station for steamers from San Francisco to Sydney, and as it lies on the east side of the isthmus (the west side having only a shallow harbour), vessels from Auckland to Sydney have to sail round the northern end of the island. In the South Island the chief towns are Christchurch and Dunedin. Christchurch is the principal town on the Canterbury Plains. It is situated a few miles from the east coast, and separated by a tunnelled hill from its port, Lyttelton, situated on one of the inlets of Banks Peninsula. Dunedin stands at the head of an inlet further south, in the old province of Otago, and is the port of the principal gold-fields of New Zealand. Port Chalmers near the mouth of the inlet is its out-port, Dunedin not being accessible to vessels of great draught. Invercargill is the chief town on Foveaux Strait; its port, for large vessels, is Bluff Harbour. Greymouth and Westport are the ports of the principal New Zealand coal-fields, on the west side of the South Island.

354. **NEW GUINEA**, which is of about the same size as New South Wales, is the largest island in the world, with the exception of Australia. Its western half, as far as the meridian of 141° E., has long been claimed by the Dutch, but till recently its eastern half was independent. Now, however, this portion has also been declared to be under the protection of European powers. In May 1885 the southern portion of the eastern half was declared under British, the northern under German, influence. In September 1888 the section under British influence was formally erected into a British Crown colony, but it has been handed over to the Commonwealth of Australia.[1] The German section is now called **Kaiser Wilhelm Land.**

Wellington, with suburbs .	65,000	Christchurch, with suburbs.	80,000
Auckland, with suburbs .	105,000	Dunedin, with suburbs .	65,000

[1] In 1903 the Commonwealth passed an Act providing for the administration of British New Guinea, towards which the Commonwealth is to furnish a sum not exceeding £20,000 a year.

The surface of the island is in many parts mountainous. The whole of the narrow south-eastern extremity (which lies almost entirely within the British territory) is traversed by a chain of mountains, known as the **Owen Stanley Range**, with peaks rising to upwards of 13,000 feet high. Two great navigable rivers have been ascended for hundreds of miles into the interior. One of these is the **Fly**, which forms a great delta on the western side of the Gulf of Papua in British territory. The other is the **Kaiserin Augusta**, which enters the sea near the middle of the coast-line of the German protectorate. The trade is very trifling; the chief exports are trepang, a marine animal eaten by the Chinese, pearl-shell (54), and copra (47). The supplies of the two former are becoming exhausted. The difficulty of obtaining labourers will probably prove a great obstacle in the way of creating export products of a more lucrative kind, such as are produced in Ceylon and Jamaica.

No plantations belonging to Europeans as yet exist in the British colony, or are even allowed, since the land belongs to the natives, and none but natives are at present permitted to acquire it. The residence of the British Governor of New Guinea is at Port Moresby, which lies to the east of the Gulf of Papua, and has regular steam communication with several ports in Queensland.

355. **MELANESIA.**—This name, meaning "islands of the blacks," is applied to several groups of small islands to the east and south-east of New Guinea, inhabited by Papuans.

The islands of New Britain, New Ireland, the Admiralty group, and others to the north of the eastern end of New Guinea are now known by the name of the Bismarck Archipelago, and belong to Germany. These are followed south-eastwards by the **Solomon Islands**, the **New Hebrides**, and **New Caledonia**. The last-mentioned island, along with the adjacent group of the Loyalty Islands to the east, belongs to the French, who make use of it as a place of deportation for convicts and political offenders. Numea, or Noumea, in the south-west of the island, is a port of call for the vessels of the French line of steamers which visit the ports of Australia. Since 1899 all the chief islands of the Solomon group except Bougainville and Buka have been recognised as belonging to

the British sphere of influence, the others to the German sphere. The natives are fierce cannibals, and commercial development has not begun. The New Hebrides are under the joint protection of the British and French, neither power having the right to form settlements on the islands.

356. **POLYNESIA.**—This name is applied to all the small islands of the Pacific Ocean, with the exception of those already mentioned. They are almost all situated within the tropics. Christianity has been introduced with considerable success on many of the islands.

356*a*. The **Fiji Islands** are a group composed mainly of volcanic islands situated to the north of New Zealand, and mostly lying between the parallels of 16° and 19° S. Their total area is rather larger than that of Wales, and Viti Levu, the largest of the islands, embraces more than half the land-surface belonging to the group. The islands were ceded in 1874 by their native king to Britain, and now form a British Crown colony. Even before that time people of European origin had established plantations of tropical crops on several of the islands, and since that date the products of such plantations (chiefly sugar, but also coco-nut, maize, tobacco, coffee, and cotton) have increased very greatly, and a large trade has thus grown up.

The plantation labourers are partly natives of the islands themselves; but, as these are not enough, labourers from other islands (principally the New Hebrides and the Solomon Islands) are introduced to work for the planters for a period of years. The chief towns of the group are seaports with fine harbours protected by coral reefs. The capital is **Suva**, in the south-east of Viti Levu. The next in importance is **Levuka**, the former capital, on a small island to the east of Viti Levu. The small island of **Rotumah**, to the north of the Fiji group, is now also British, and is annexed to the colony of Fiji.[1]

356*b*. The **Tonga** and **Samoan** or **Navigator Islands** lie to the east of the Fiji group, and still further east are the **Cook** or **Hervey Islands**, the **Society** and **Low Islands**. In 1888 the British flag was hoisted on the Hervey group, the principal of which is Rarotonga. To the north of this group, in about 9° S.,

[1] The total population in 1891 was 124,000; in 1901, 118,000 (2447 Europeans

lies **Penrhyn Island**, now also British; and still further north (between 0° and 5° N., and east of 160° W.) lie two other small islands now annexed to the British Empire, **Fanning Island** and **Christmas Island**. All three yield pearl-shell (54) and copra (47). (See also **12**.) Besides Penrhyn Island, other small islands belonging to the same group (the Manihiki Islands) and to other groups south of the equator and east of the meridian of 180°, have been annexed to the British Empire. Many, if not most of these are uninhabited, and are valuable solely on account of the guano (64) which they yield. The port of **Apia**, on one of the Samoan Islands, is the centre of the German trade with the Pacific, the chief product of which for European markets is copra. In 1899 these islands were divided between the German Empire and the United States, the German Empire receiving Savaii and Upolu, on the latter of which stands Apia, while the United States obtained Tutuila with the fine natural harbour of Pago-pago (pronounced Pango-pango—the *ng* as in *sing*). The Society Islands, of which the most important is the charming volcanic island of **Tahiti**, are under French protection, and so also are the Low Islands and the **Marquésas** group, to the north of the latter.

Between the equator and 15° N. are the **Pelew**, **Caroline**, and **Marshall Islands**, in that order from west to east, and south of the last-mentioned group the **Gilbert Islands**. The first three of these groups now belong to Germany, which possesses also all the **Marianne** or **Ladrone** Islands (to the north of the Carolines) except Guam, which belongs to the United States. In 1892 the Gilbert Islands were annexed by the British.

356*c*. The **Hawaiian** Islands[1] are an important group of volcanic islands, mainly between 19° N. and the Tropic of Cancer, belonging since 1898 to the United States. In area they are about equal to the Fiji Islands, which they resemble in the nature of their products. The chief island is **Hawaii**, on which the extinct volcano of **Mauna Kea** rises to the height of nearly 14,000 feet. As in the Fiji group, the plantations belong to people of European stock, and the labourers are partly

[1] Formerly known as the Sandwich Islands.

natives, but to a large extent composed of immigrants.[1] The native population, a happy but indolent race, is dwindling, being unable to compete with the immigrant races hardened by a severe struggle for existence. By far the most important export is sugar. Wheat, flour, and pork are the principal articles which the islands take in return. The capital is **Honolulu**, on the island of Oahu.

TRADE ROUTES.

357. Goods are conveyed by sea from any seaport from which it is possible to obtain goods which can be sold at a profit elsewhere. But the route by which the goods are conveyed to their ultimate destination depends on many circumstances, some connected with the nature of the commodities, some with the mode of conveyance, that is, whether by sailing vessel or steamer, and all, of course, connected with the relative situation of the place of origin and the destination of the commodities.

357*a*. To understand how the nature of the commodities carried affects the route, two important considerations must be borne in mind. First, it causes expense to transfer goods from one vehicle (whether ship, railway waggon, or cart) to another. It is therefore an advantage to convey goods directly from the port which serves the district where the goods are obtained to that which serves the district in which they are ultimately sold. But, *second*, it is cheapest to convey goods in the largest possible vessels, provided that those vessels can be filled. This frequently makes it cheaper on the whole to incur extra costs in unloading and reloading (handling expenses), and send goods first in smaller quantities to a great port, from which they are sent in large vessels to another great port, from which again they may be sent by sea to some other port nearer their final destination.

357*b*. It is bulky goods, and especially such as involve great labour in handling, like coal, timber, ores, and clays, that are most likely to be carried direct, for the quantity of such goods

[1] Population in 1900, 154,000, of whom 59 per cent. were foreign born. Of the foreign population 71 per cent. were Japanese, the others mainly Chinese.

that may be required in a small district may be enough to fill a larger or smaller ship, and thus bring about the greatest possible saving in handling. That is why so many small British and Irish seaports import timber directly from abroad, why so many British seaports export coal sometimes in small vessels, and why so many small foreign seaports receive British coal, why small ports in Cornwall and Devon send off entire cargoes of China and other clays, why small Welsh ports fill vessels with slates for many destinations, and why comparatively small fishing towns in England and Scotland receive in separate ships cargoes of ice and send out ships laden with barrels of herrings.

357*c*. On the other hand, the economy of carrying in large ships explains why tea, coffee, spices, and other commodities from the east to the United Kingdom come almost entirely first to London, it may be in ships that are largely filled with bulky commodities. Of all these commodities, much greater quantities are used in London itself than in any other centre in the country; but great quantities are also sent away by rail from London, and great quantities by sea both to British and foreign ports with which London carries on a regular trade. The daily shipping reports show how many ships come to the large ports laden with "general cargoes," that is, cargoes composed of many kinds of goods brought together to get the advantage of carriage in large ships.

357*d*. It is obvious that the advantage of carrying in large ships will be the greater the longer the distance that goods are so carried. That is one way in which the relation of the place of origin to the destination of goods affects the route followed (357). It is one reason why the eastern goods mentioned come chiefly to London in the first instance, and also the reason why the great bulk of Australasian and Cape wool imported into England comes first to London (91*a*), even though not a pound of it is worked up in London, but all has to be sent away again either to Bradford (85*c*) or some other town at home or to foreign countries.

358. Then, again, the nature of the commodities may affect the route at sea by determining whether the goods are sent by sailing vessel or steamer, for which the routes in many

cases differ. Perishable goods, like fresh meat, vegetables, fruit and flowers, butter and eggs, and goods of high value in proportion to their bulk, like mails, silks, watches, jewelry, ornamental feathers and artificial flowers, are taken by the quickest routes in spite of the increased cost per mile, and may often be transferred from sea to land, and then again from land to sea if necessary, for the sake of speed.

358*a*. The goods for which **sailers** are likely to be preferred are generally those bulky goods which have already been instanced as likely to make up whole cargoes. But even bulky goods are being carried in larger and larger quantity by steamers, not only in consequence of the saving of time and the greater certainty with which their arrival can be counted on, but also because steamers can in many cases carry even bulky goods as cheaply, or nearly as cheaply, as sailers. This is partly because bulky goods, if heavy, are often valued as ballast, and partly because steamers are on the average larger than sailers. Sailers are, however, still much employed, and for distant voyages even very large sailers.[1] Hence it is important to note how their routes are more or less governed by the prevailing winds, as stated in par. 11*c*.

359. **Steamer routes** are almost independent of winds and currents. Where practicable, the shortest route from port to port is adopted by steamers, and that is a route following an arc of a great circle of the earth, in other words, a circle of which the centre of the earth is the centre. Hence where the route is from north to south or the reverse a meridian is followed, but where the route is from east to west it is only on the equator that the route lies along a parallel of latitude. As these parallels become shorter and shorter towards the poles, the shortest or **great circle routes** deviate more and more from the parallels in the same direction. The farther north an east to west route lies in the northern hemisphere the more will it curve towards the north from the parallel connecting places at the ends of the route, in the opposite hemisphere the more will it curve to the south as one nears the south pole. In the

[1] The largest sailing vessel yet built, the *R. C. Rickmers*, a five-master capable of carrying about 8000 tons dead weight, was launched at Geestemünde in 1906. It is, however, provided with auxiliary steam-engines for propulsion.

northern hemisphere if the route is to a port lying north-east of the starting-point, and thus connected by a straight line with that point on a map drawn on Mercator's projection,[1] the great circle route will be drawn on that projection by a curved line lying to the north-west of the straight line; if the course is from north-west to south-east, the curve will lie to the north-east of the line joining the two ends. If the course is from south-west to north-east in the southern hemisphere the curve on the map will lie to the south-east, and if from north-west to south-east it will lie to the south-west of the respective straight lines joining the points of departure and arrival.

359*a*. It is only on a globe that great circle routes can be at once seen and measured. This is done by means of a flexible strip of brass called a quadrant, marked in degrees of the earth's equator according to the scale of the globe for which it is constructed. Each degree represents 60 nautical miles,[1] the mile in which ocean distances are usually stated.

359*b*. To take great circle courses, however, is not always practicable. The relations of sea and land may prevent it, and so also may the character of the climate. For example, the great circle route from Cape Town to Wellington, New Zealand, goes to the south of the Antarctic Circle, and for that reason a more northerly though longer route is preferred.

359*c*. Among frequented ocean routes those in which great circle sailing causes the most marked deviation from the parallels of latitude are those of the North Pacific, where very wide stretches of ocean have to be crossed between the ports of North America and those of Eastern Asia. Yokohama is in a more southerly latitude than San Francisco, yet a steamer sailing for Yokohama from San Francisco begins by sailing north-westwards, and describes a curve which rises to about 47° N. The route from Vancouver or Puget Sound to Yokohama passes just south of the Aleutian Islands. In the narrower waters of the North Atlantic the rise of the east-west great circle routes to the north of the parallels is not

[1] Mercator's projection is the only one on which all directions referred to points of the compass are shown by straight lines. That is why this projection is nearly always used for marine charts.

[2] One nautical mile=1·1507 statute mile.

so striking, especially since Newfoundland lies in the way on any great circle from the south of Ireland to any American port north of Cape Hatteras. The trend of the coast-line south of that cape is almost on the line of a great circle passing thence to the south of Ireland, and hence it happens that the routes from all American ports from Nova Scotia to the Gulf of Mexico are almost identical from about the meridian of 60° W. eastwards to the English Channel, and this is accordingly the busiest tract of the ocean. To reduce the risk of collision in this busy tract different lines of steamers adhere with great precision to certain limits, and adopt slightly different routes on the outward and homeward voyages.

360. On busy routes through different oceans the route is chiefly determined by the relations of sea and land, but are slightly modified by the position of **coaling-stations**. Next to the North Atlantic route, the most frequented is that through the Suez Canal, which is the meeting-place of all European and North Atlantic lines to East Africa and the Far East, and most of those to Australia and New Zealand. The part from the Straits of Gibraltar to the mouth of the Gulf of Aden is common to most of the lines following these routes. On this section the chief coaling-stations are Gibraltar, Algiers, Port Said, and Aden. These coaling-stations are also great entrepôts. At Gibraltar and Port Said many goods are landed by vessels entering the Mediterranean from the west or east respectively for ports of the Mediterranean or the Black Sea, at which the vessels landing the goods do not call. Algiers is a convenient entrepôt on account of its intimate relations with Marseilles (about 410 nautical miles distant). Aden is a place at which goods for East Africa can be dropped by steamers belonging to eastern Asiatic and Australasian lines, and goods from East Africa can be picked up by steamers of the same lines. Colombo is the coaling-station and entrepôt where the lines diverge that pass round the south of Australia. Singapore is the chief coaling-station and entrepôt, and Batavia a minor but still important port for vessels going farther east, and at one or other of these the lines diverge that go round the north of Australia. The main route to the east continues on to Hong-Kong, Shanghai, Nagasaki, and Yokohama, all great

coaling-stations and the first two great entrepôts, Hong-Kong for southern China, and Shanghai for the Yangtse valley and northern China. Important branch lines proceed from Singapore to the ports of Indo-China, to North Borneo and to Manila in the Philippine Islands.

360*a*. In the North Atlantic Ocean St. Vincent in the Cape Verde Islands is an important coaling-station both on the route to Cape Town and that to all the South American ports south of Cape St. Roque. Norfolk, on the coast of Virginia, the place of shipment of the excellent steam-coal of the Pocahontas coalfield in the extreme south of West Virginia (about 400 miles by rail distant), is a place frequently visited for coal by vessels returning from the Gulf of Mexico to the English Channel or the Irish Sea. St. Thomas and St. Lucia in the West Indies are coaling-stations visited on routes from North to South America or from Europe to Central and the north of South America, and St. Michael in the Azores may serve the same purpose both for steamers plying between north-western Europe and the West Indies and between North America and the Mediterranean.

360*b*. In the South Atlantic the chief coaling-stations are Cape Town and Buenos Aires, both of which obtain their steam-coal chiefly from Cardiff. On the American seaboard of the Pacific there is no great coaling-station between San Francisco, which gets its coal mainly from the coal-mines of Vancouver Island, and Conception Bay in Chile, where coal-mines exist close to the sea. Honolulu is a coaling-station on the routes from western North America to Australia and New Zealand.

361. The most important **land routes** connecting England with the continent, used for passengers, mails, and perishable and valuable goods, necessarily start from London, and are interrupted by the sea. The outports on the shortest sea-routes are Dover and Folkestone, connecting England with France by Calais and Boulogne respectively. The Dover-Calais route is shortest of all,[1] being only 22 nautical miles as against 25 on

[1] On this route two projects are now being urged for getting rid of the necessity of handling goods at both ends of the sea-crossing. One is to establish a train-ferry, that is, to provide steamers equipped for the carriage of loaded trains, and the other is to pierce a tunnel under the straits.

the Folkestone-Boulogne route, but Boulogne has the advantage of being 27 statute miles nearer Paris. Dover also connects with Ostend (68 nautical miles). Other important outports are Harwich, from which steamers belonging to the Great Eastern Railway run to Antwerp (140 nautical miles), the Hook of Holland (the outport of Rotterdam, 101 nautical miles), and Esbjerg in Denmark (350 nautical miles); New-haven, whence the London, Brighton, and South Coast Railway runs steamers to Dieppe (76 miles) for Paris; and Southampton, from which the London and South-Western Railway runs steamers to Havre (122 miles), Cherbourg (98 miles), and St. Malo. Regular steamers also run in connection with the Chatham and South-Eastern Railways from Queenborough in the Isle of Sheppey to Flushing in Holland, but this trade is reckoned as belonging to the port of London.

362. Paris is the great focus for the routes touching the coast of France at all the ports from Calais to Havre, the railway distances to that centre being from Calais by Boulogne and Amiens 185 miles, from Dieppe 121 miles, and from Havre 141½ miles.

363. At Paris the main railways going southwards fork, one line passing to the west the other to the east of the Central Plateau. Of these two lines the western proceeds first south to Orleans, then descends the right bank of the Loire to Tours, there crosses the Loire, and continuing southwards by an ancient route up the valleys of the Vienne and Clain passes Poitiers and afterwards goes by Angoulême, Libourne, where it bridges the Dordogne, Bordeaux, where it bridges the Garonne, and Bayonne to the Spanish frontier at the west end of the Pyrenees.

363*a*. The French trains cannot pass into Spain owing to a difference in the gauge.[1] Passengers and goods for Madrid and Lisbon have accordingly to be transferred to other trains at the frontier. The line to Madrid runs south-westwards, ascends to the Spanish tableland through the Pass of Pancorbo, passes Burgos and Valladolid, and afterwards turns south-eastwards to Avila and crosses the Sierra de Guadarrama to Madrid, the dis-

[1] The gauge of the main lines of the chief European countries, except those of Spain and Portugal and Russia, is the same as that of Great Britain, 4 feet 8½ inches. The Russian gauge is 5, that of Spain and Portugal 5½ feet.

tance of which from Paris is 792 miles. From Madrid the railway runs on southwards to Alcazar, where a branch is thrown off south-eastwards, which again forks for Alicante and Cartagena. From Alcazar the line still proceeding southwards crosses the Sierra Morena at the Puerto de Despeñaperros, and thence descends to the Guadalquivir, which it then follows to Cordova and Seville, whence it passes southwards to Jerez and Cadiz, the port for Moroccan mails. From Cordova a branch winds south to Malaga. The line from Madrid to Lisbon, 410 miles long, runs for the most part parallel to, but generally in Spain above the valley of the Tagus, first on the north then on the south side, recrossing the river in Portugal a little below Abrantes.

364. The eastern of the two lines mentioned in par. 363 first runs south-eastwards up the valleys of the Seine, Yonne, and Armançon, then tunnelling Mont Tasselot between the Côte d' Or and the Plateau of Langres it descends on Dijon. From this point it runs south to Châlon, and then keeping close to the right bank of the Saône passes Mâcon and reaches Lyons. There it crosses to the left bank of the Rhone, and continues southwards in sight of the Cevennes on the right and the Alps on the left through Vienne, Valence, Avignon, and Arles. At Arles it leaves the Rhone and runs south-eastwards to Marseilles, a distance of 536 miles from Paris, 696 from Boulogne, and 721 from Calais.

364*a*. From Tarascon a branch crossing the Rhone passes south-west through Nîmes and Narbonne to the east end of the Pyrenees, and there connects with the Spanish line to Barcelona and the towns of eastern Spain.

364*b*. More important branches diverge on the east side of this route. First, from Dijon runs the line which now forms the shortest route to Milan (519 miles from Paris, 704 miles from Calais). This line runs south-east to Pontarlier, crosses the Jura at the Col de Jougne, descends to Lausanne, and then following the Lake of Geneva and the valley of the Rhone to Brig, crosses the Alps in the Simplon tunnel ($12\frac{1}{4}$ miles long; summit, 2300 feet), and descending the valley of the Rio Toce past Domodossola proceeds onwards by the south end of the Lago Maggiore to Milan.

365*c*. From Milan railways run west to Turin (155 miles),

east to Venice (165 miles) and Trieste (320 miles; Calais to Trieste 1024 miles, as against 1116 miles from Ostend by Cologne, Frankfurt, and Munich), and south to Genoa (93 miles). Proceeding southwards from Genoa the railway skirts the Italian coast and passes through a large number of tunnels on its way to Pisa. From there one may diverge up the valley of the Arno to Florence (743 miles from Paris) and proceed by Arezzo, the Val di Chiana, and the valley of the Tiber to Rome (902 miles), and thence to Naples (1065 miles), or may continue right onwards to Rome through the Tuscan Maremme.

364*c*. Another branch runs from Mâcon to Geneva (388 miles from Paris), and another from Mâcon to the Mont Cenis tunnel. This is the Brindisi route. The line first runs south-east past Chambéry across an easy water-parting between the valleys of the Rhone and Isère, then up the valleys of the Isère and Arc to the tunnel ($7\frac{3}{5}$ miles long; summit, 4380 feet), on the Italian side of which it descends the valley of the Dora Riparia to Turin. From Turin the line runs eastward along the southern base of the *Hills of* Montferrat to Alessandria, and thence to Piacenza, whence the route is due south-east through Bologna along the base of the foothills of the Apennines to Ancona, and then near the coast by Foggia to Brindisi. The distance of this port from Paris is 1169 miles, from Calais 1357 miles, and from London 1460 miles.

364*d*. By the different *railways which are all* united at Dijon a great variety of products may be conveyed by rail to London with a short sea break. Among them are raw silk, silk wares, and other eastern products, the same commodities from Italy and the Rhone valley, dates from Algeria, fresh flowers from the mouth of the Rhone valley, watches and parts of watches from the Swiss and French Jura, French wines from Burgundy, gloves from the Grenoble district and Paris, and woollen manufactures from the north of France. The principal articles sent in the other direction from Dover, Folkestone, and Newhaven are woollen and cotton manufactures and apparel, besides goods sent through the parcel post and goods of foreign and colonial origin. For exports by parcel post Dover is the leading port of the country, followed by London (no doubt largely Queenborough) and Southampton. Colonial wool is

more largely exported from Dover than any one article of British origin. Marseilles, Naples, and Brindisi are all shipping and receiving places for eastern mails.

365. Less important than the main lines from Paris east and west of the Central Plateau (363) is the line which crosses the Loire at Orleans, and then southwards partly across the western foothills of the Plateau to Limoges, Montauban, and Toulouse. At present there are no direct connections with Spain by means of this line, but three railways across the Pyrenees are now in progress, one of which will establish a fairly direct connection between Toulouse and Barcelona, and thus provide a rapid route by Cartagena to Oran in Algeria.

366. What is known as the Orient Express route is that from Paris to Constantinople (172). It first runs up the valley of the Marne past Épernay and Châlons, then by the route of the Marne-Rhine canal past Nancy, across the north of the Vosges to Strassburg. It then crosses the Rhine and runs 43 miles northwards along the base of the Black Forest, next passes eastwards to the Neckar valley, and after winding through the most fertile and populous part of that valley past Stuttgart, goes on to Ulm on the Danube. Thence it runs eastwards past Augsburg, Munich, and Salzburg, rejoins the Danube valley at Linz, and follows that valley past Vienna, Pressburg, and Budapest to Belgrade, beyond which the route is as described in par. 172. The total length of the route to Constantinople is 1949 miles (from London 2237 miles), that from Paris to Salonica 1726 miles. The Baghdad railway (190*a*), beginning at Haidar Pasha, may be looked upon as a continuation of this railway. It is on the same gauge, thus rendering possible the connection of the lines by a train-ferry.

367. To Milan, Genoa, &c., there are express routes through the St. Gothard tunnel by Calais, Ostend, Flushing, and the Hook of Holland. From Calais the route is by Amiens, Laon, Reims, and Châlons, then up the valley of the Marne, across the Plateau of Langres, then south of the Vosges to Basel, and thence by Lucerne to the St. Gothard tunnel (nearly 10 miles long; summit, 3785 feet) down the valley of the Ticino, across the Lake of Lugano, and thence by Chiasso (Italian frontier station) and Como to Milan. The whole distance by this route

from Calais is 756 miles, against 704 miles by the Simplon route (364*b*).

367*a*. From Ostend to Milan the route is first eastwards through the plains of Belgium, past Bruges, Ghent, and Brussels to Liège, then across the margin of the hilly country of Belgium and western Prussia past Aachen to Cologne. From here it runs up the gorge and valley of the Rhine either on the left or the right bank. The left bank route is by Bonn, Coblenz, Mainz, Strassburg, and Mülhausen to Basel, the other by Wiesbaden, Frankfurt, Karlsruhe, and Freiburg-im-Breisgau to Basel, beyond which the route is the same as that from Calais. The distance from Ostend to Milan by the left bank of the Rhine is 782 miles (from Antwerp 717 miles), by the right bank 795 miles (from Antwerp 730 miles). From Flushing and the Hook of Holland the routes are the same beyond Cologne. To Cologne the route is nearly due east to Wesel, then up the Rhine, and the distance from Flushing to Milan is 567 miles by the left bank, and 580 by the right. From the Hook the route to Cologne is by Rotterdam, Dordrecht, Nijmegen, and Cleve, and the distance to Milan by the left bank of the Rhine is 751 miles, right bank 764 miles.

367*b*. By these routes are conveyed to London Italian eggs, Italian, Swiss, and German silks, Italian, French, and Rhine wines, Swiss embroideries and other cotton manufactures, condensed milk, cocoa and chocolate, and large quantities of butter and fresh meat.

368. The Ostend-Vienna express route is the same as the Ostend route to Milan as far as Mainz, then up the Main valley to Frankfurt, thence south-eastwards between the highlands of the Spessart and the Odenwald, and across the Franconian Heights to Nuremberg, and onwards to Ratisbon, Passau, and Linz, all three on the Danube. Beyond Linz the route is the same as that of the Orient Express (366). The distance from Ostend to Vienna is 832 miles, from Antwerp, by the same route from Louvain, 767 miles.

369. To Berlin there are express routes from the same four ports as to Milan by the St. Gothard, namely, Calais, Ostend, Flushing, and the Hook. The shortest railway journey is that by Flushing, but the shortest from London in time is that by

Ostend. This is what is called the Nord (North) Express route. To Cologne it is the same as that to Milan, but from Cologne it is down the Rhine either to Düsseldorf, and thence by Soest and Magdeburg to Berlin (572 miles from Ostend), or to Oberhausen, and thence by Hamm and Hanover to Berlin (576 miles). From Flushing the route is the St. Gothard route to Oberhausen, and the total distance to Berlin is 419½ miles. From Calais the route is by Lille to Brussels, from which point the route is the same as the Ostend route with the same alternatives from Cologne, the distances being 635 miles by Magdeburg and 639 miles by Hanover. From the Hook the route is by Rotterdam, Utrecht, Amersfoort, the Dutch cotton manufacturing towns of Almelo and Hengelo, and thence to Osnabrück and Hanover, the distance to Berlin being 432 miles.

370. The Esbjerg route from Harwich is a quick route to Copenhagen and the south of Sweden. Train-ferries carry sleeping-cars across the Little Belt from Jutland to Funen (Fyen), and across the Great Belt from Funen to Seeland and Copenhagen, and also across the Sound to Malmö. By this route large quantities of bacon, butter, eggs, and other Danish produce are brought to London.

371. Berlin is the most important railway centre of the continent east of Paris. With the two ports of Stettin and Hamburg it is connected by the easiest possible railway routes running across plains unobstructed by any important river, the railway to Stettin, 83½ miles, that to Hamburg, 177 miles long. From the nearest Adriatic ports it is separated by the Alps, the windings through which lengthen the railway distance to Venice, by the Brenner route, to 761 miles, that to Trieste, by Vienna (446 miles) and the Semmering route, to 816 miles. The principal eastern lines from Berlin are one running north-east to St. Petersburg, one running east to Warsaw and Moscow, and one running south-east to Breslau (203 miles), Cracow (367 miles from Berlin), Lemberg (580 miles from Berlin), and Odessa (1040 miles). To Galats on the Danube the distance is about the same.

372. The St. Petersburg and Moscow routes both have connections with the Siberian railway (182*a*). The railway to St. Petersburg crosses the Oder at Küstrin, the two arms of the delta of the Vistula at Dirschau and Marienburg, then runs

north-east to Königsberg, thence eastwards to Vilna, and finally north-eastwards past Dvinsk (Dünaburg) to St. Petersburg, a distance of 984 miles, or 1602 miles from Ostend, 1416 miles from the Hook. From St. Petersburg a railway now runs (since 1906) nearly due east by Vologda and Vyatka to Perm (1070 miles), the chief town in the Ural region west of the mountains, and Ekaterinburg (1380 miles from St. Petersburg), the chief town in that region east of the mountains, and then south to Chelyabinsk (1533 miles), the starting-point of the Siberian railway. This route forms the shortest connection between the Far East and a European seaport, the total distance from Vladivostok to St. Petersburg being about 5500 miles, from Dalny about 5700, and from Peking, by Tientsin and Niuchwang, about 6000.

372*a*. From Berlin to Moscow there are two routes, one the same as that to St. Petersburg as far as Schneidemühl, then eastward by Bromberg to Thorn, the other crossing the Oder at Frankfurt, and proceeding thence by Posen to Thorn. From Thorn the line goes on to Warsaw, where the Vistula is crossed, after which it runs to Moscow by Smolensk, the distance from Berlin being 1200 miles. From Moscow to Chelyabinsk the route is by Samara and Zlato-ust (**133***c*), and the distance is 1311 miles, so that the whole distance from Berlin to Dalny is about 6670 miles. The distance from St. Petersburg to Dalny by this route is 5882 miles. From a point a little east of Samara a line branches south-eastwards past Orenburg and afterwards by the valley of the Sir to Tashkent (2100 miles), which is connected with the Trans-Caspian Railway (**187**) at a point a little to the east of Samarkand, so that Andijan, or Andizhan, in Ferghana, is now only 2400 miles from Moscow, whereas formerly the Ferghana cotton, in order to reach Moscow, had to be carried either 1268 miles by rail to the Caspian, across that sea to Petrovsk, and thence 1348 miles, in all 2616 miles by rail, or across to Astrakhan on the Volga, and thence by river boats.

372*b*. The only products of importance that come from the Far East by the Siberian railway are tea and silks. From Siberia itself come furs and butter, the latter mainly from western Siberia. Sometimes wheat also is conveyed from the

extreme western parts of Siberia. The chief commodities carried in the opposite direction are agricultural machinery and other manufactures. Much of the Siberian butter ultimately reaches England, but generally, if not always, from a Russian port.

373. The central situation and large population of Moscow have inevitably made it a very important railway focus. Its nearest port is St. Petersburg (400 miles). Other important outlets on the Baltic are Riga (by Smolensk, 643 miles) and Windau (in Russian Vindava, 680 miles). The nearest port on the Black Sea is Sevastopol (960 miles). Odessa is connected with it by two routes almost equal in length (about 1030 miles), one by Kursk and Kiev, the other by Kursk, Kharkof, and Elizavetgrad.

373*a*. It is a noteworthy fact that none of the lines connecting the great towns of Russia with central and western Europe pass through the important textile manufacturing town of Lodz (137), which is moreover situated at some distance from the nearest coalfield. Lodz is 88 miles from Warsaw, and 22 miles by rail from the junction on the Warsaw-Vienna line which passes through the coalfield of south-western Poland, which is at a distance of about 140 miles.

374. In Africa there is as yet no through railway route. The Cape to Cairo railway is practically being formed by the prolongation of the Nile valley railway (245) and the Cape-Rhodesia railway (260).

375. In North America the shortest trans-continental line north of the Gulf of Mexico in summer is in Canada. As yet the only railway that has a through line is the Canadian Pacific, the length of whose line from Montreal to Vancouver is 2904 miles; but when the St. Lawrence is closed by ice the port made use of in the east is St. John, Nova Scotia, which brings up the total length of the line (by the short route partly through the State of Maine, U.S.) to 3386 miles. The distance to Liverpool from Montreal is 2800 nautical miles, and from St. John 2710, against 3030 from New York.

375*a*. The wheat of the north-west is the chief product carried eastwards by this route, and the arrangement of the long lakes Winnipeg, Manitoba, and Winnipegosis, west of the great lakes

of the St. Lawrence, must force all the traffi
to the south of those lakes so long as there i
large body of settlers in more northerly latit
laying of a railway running from west to ea
the lakes. The Lake of the Woods farther
traffic to the narrow belt between that lake ar
or forces it southwards into the territory of
That is why most of the lines of the Ca
converge on Winnipeg, and why that town ha
rapidity since the development of that re
Canadian Pacific line passes north of the La
and the Grand Trunk Pacific is to follow th
the Canadian Northern Railway runs from F
south of the Lake of the Woods, and enters
south-eastern angle of the province, and th
westwards through Winnipeg to Edmonton,
Prince Albert (288). Between Winnipeg ar
Grand Trunk Pacific is now constructing
railway.

375*b*. The main Canadian Pacific line, afte
Calgary, crosses the Rocky Mountains at th
Pass at the altitude of 5300 feet, and on
the mountains has some very steep gradie
southerly branch through the Crow's Nest P
4410 feet high, but there are serious physica
way of completing this line to the seaboard.
Prince Rupert (289) the Grand Trunk Pacific
Yellow Head Pass to cross the Rockies. The
the line will be about 3700 feet, and the gra
comparatively easy. The ocean distance from
Yokohama is about 3860 nautical miles, as a
Vancouver. The Canadian Northern Railwa
a line through the Yellow Head Pass, but i
British Columbia will be southwards and tern
couver, an eastern connection of this compa
Port Arthur north of Lake Nipigon and then
Ottawa to Montreal.

375*c*. There are several routes from the ea
the interior of North America which run partly
and partly through the United States. The

extreme western parts of Siberia. The chief commodities carried in the opposite direction are agricultural machinery and other manufactures. Much of the Siberian butter ultimately reaches England, but generally, if not always, from a Russian port.

373. The central situation and large population of Moscow have inevitably made it a very important railway focus. Its nearest port is St. Petersburg (400 miles). Other important outlets on the Baltic are Riga (by Smolensk, 643 miles) and Windau (in Russian Vindava, 680 miles). The nearest port on the Black Sea is Sevastopol (960 miles). Odessa is connected with it by two routes almost equal in length (about 1030 miles), one by Kursk and Kiev, the other by Kursk, Kharkof, and Elizavetgrad.

373*a*. It is a noteworthy fact that none of the lines connecting the great towns of Russia with central and western Europe pass through the important textile manufacturing town of Lodz (137), which is moreover situated at some distance from the nearest coalfield. Lodz is 88 miles from Warsaw, and 22 miles by rail from the junction on the Warsaw-Vienna line which passes through the coalfield of south-western Poland, which is at a distance of about 140 miles.

374. In Africa there is as yet no through railway route. The Cape to Cairo railway is practically being formed by the prolongation of the Nile valley railway (245) and the Cape-Rhodesia railway (260).

375. In North America the shortest trans-continental line north of the Gulf of Mexico in summer is in Canada. As yet the only railway that has a through line is the Canadian Pacific, the length of whose line from Montreal to Vancouver is 2904 miles; but when the St. Lawrence is closed by ice the port made use of in the east is St. John, Nova Scotia, which brings up the total length of the line (by the short route partly through the State of Maine, U.S.) to 3386 miles. The distance to Liverpool from Montreal is 2800 nautical miles, and from St. John 2710, against 3030 from New York.

375*a*. The wheat of the north-west is the chief product carried eastwards by this route, and the arrangement of the long lakes Winnipeg, Manitoba, and Winnipegosis, west of the great lakes

of the St. Lawrence, must force all the traffic from that region to the south of those lakes so long as there is not a sufficiently large body of settlers in more northerly latitudes to justify the laying of a railway running from west to east to the north of the lakes. The Lake of the Woods farther east confines the traffic to the narrow belt between that lake and Lake Winnipeg, or forces it southwards into the territory of the United States. That is why most of the lines of the Canadian north-west converge on Winnipeg, and why that town has grown with such rapidity since the development of that region (287). The Canadian Pacific line passes north of the Lake of the Woods, and the Grand Trunk Pacific is to follow the same route, but the Canadian Northern Railway runs from Fort William (286) south of the Lake of the Woods, and enters Manitoba in the south-eastern angle of the province, and thence runs north-westwards through Winnipeg to Edmonton, with a branch to Prince Albert (288). Between Winnipeg and Edmonton the Grand Trunk Pacific is now constructing another line of railway.

375*b*. The main Canadian Pacific line, after passing through Calgary, crosses the Rocky Mountains at the Kicking Horse Pass at the altitude of 5300 feet, and on the other side of the mountains has some very steep gradients. The more southerly branch through the Crow's Nest Pass (279) is only 4410 feet high, but there are serious physical obstacles in the way of completing this line to the seaboard. For its route to Prince Rupert (289) the Grand Trunk Pacific has selected the Yellow Head Pass to cross the Rockies. The highest point on the line will be about 3700 feet, and the gradients will all be comparatively easy. The ocean distance from Prince Rupert to Yokohama is about 3860 nautical miles, as against 4330 from Vancouver. The Canadian Northern Railway is also carrying a line through the Yellow Head Pass, but its route through British Columbia will be southwards and terminate near Vancouver, an eastern connection of this company running from Port Arthur north of Lake Nipigon and then by Sudbury and Ottawa to Montreal.

375*c*. There are several routes from the eastern seaboard to the interior of North America which run partly through Canada and partly through the United States. The short line of the

Canadian Pacific through Maine has already been mentioned (375). The Sault Ste. Marie-Minneapolis branch of the same railway (277*a*) is re-connected with the main line a little to the west of Regina by a line which re-enters Canada at Portal, and which brings down vast quantities of Canadian wheat to be milled at Minneapolis. From Montreal to St. Paul (adjoining Minneapolis) by this route the distance is 1119 miles, and to Vancouver 2930 miles. By the Grand Trunk connection with Chicago (277*a*), effected by means of a tunnel under the St. Clair River between Sarnia and Port Huron, Montreal is 849 and Portland, Maine, 1146 miles from Chicago. By another route New York is connected with Chicago by a line which passes over the Niagara River at Buffalo into Canada, and then re-enters the United States by Windsor and Detroit. Here the connection is also being made by means of a double railway tunnel under the Detroit River.

376. The trans-continental lines which lie entirely within the United States have to cross both the Appalachian system and the Rocky Mountains, which necessitate great windings and steep gradients. In the east railways on both banks of the Hudson run northwards for more than 140 miles to take advantage of the same breach in that system, the Mohawk valley, as is made use of by the Erie Canal (295*a*) in proceeding westwards to Buffalo and Chicago. This deviation raises the distance between those two points to upwards of 980 miles. A shorter route, 912 miles[1] in length, connects the two places by way of Philadelphia (90 miles) and Pittsburg (444 miles), but in one part this route has an average gradient of 1 in 60 for 11 miles, and has one curve so sharp that rails weighing 100 lbs. to the yard have been worn down to 82 lbs. in fourteen months. Windings and heavy gradients occur also on the routes between Boston and Buffalo, the windings being such that even on the route through the Hoosac Mountains (302*d*) the distance by Buffalo to Chicago is about 40 miles greater than that from New York through the same town.

376*a*. The termini both of the West Shore line running up the right bank of the Hudson and the line through Philadelphia to Chicago have at present to be reached by ferry from New

[1] The same distance as that by rail between Chicago and New Orleans.

York, but tunnels are now being pierced under the harbour to connect the city, including Brooklyn, with the New Jersey shore.

377. The connection of Chicago, and thus of the eastern seaboard, with San Francisco (or rather with Oakland, from which there is a train-ferry to San Francisco) by the completion of the Union and Central route, through Des Moines and Omaha, was effected in 1869, and this was the first trans-continental connection north of the Isthmus of Panama. Three passes have to be crossed above 7000 feet in height, the highest 8240 feet. The total distance by this route between New York and San Francisco is 3270 miles by the Philadelphia route, 3338 miles by Buffalo. Denver, Colorado, 1210 miles by rail from Chicago, is connected with the Union Pacific railway at Ogden, east of the Great Salt Lake, by a line rising to altitudes of 10,418 and 10,856 feet, and by this route is 1611 miles from San Francisco.

377*a*. The Northern Pacific and the Great Northern railways have since connected Chicago with Portland, Oregon, and with Puget Sound. The eastern terminus of both these lines is St. Paul, 410 miles by rail north-west of Chicago. The Northern Pacific line crosses two passes each 5560 feet in length (one in a tunnel). The distance from St. Paul to Tacoma, on Puget Sound, is 1912 miles, to Portland 2056 miles, those from New York by Philadelphia 3234 and 3378 miles respectively. The Summit station of the Great Northern railway is only 5200 feet in height, and the distance of Seattle, on Puget Sound, from St. Paul by this route is 1823 miles, from New York 3145 miles. Both these railways have also connections with the head of Lake Superior, at Duluth and the town of Superior.

377*b*. The Atchison, Topeka, and Santa Fe railway and the Southern Pacific both establish connections with San Fancisco by way of the southern half of the Californian valley. The former rises in two places to above 7000 feet. It completes a trans-continental connection by way of St. Louis, where the Mississippi has been bridged since 1874. By the shortest railway connection with the Santa Fe system this city is 2395 miles from San Francisco, while it is 1063 miles from New York by way of Philadelphia, Pittsburg, Columbus, and Indianapolis;

but the shortest connection of St. Louis with the eastern seaboard is that with Baltimore, by Cincinnati, a distance of 920 miles. The Southern Pacific connects San Francisco with New Orleans (2489 miles) and Galveston (2183 miles). Its highest level is 5082 feet, but it sinks in southern California to 263 feet below sea-level.

377*c*. Only a comparatively small number of commodities are conveyed by these trans-continental lines from the western to the eastern seaboard. The only commodity imported in large quantity on the Pacific side for carriage to the Atlantic side is raw silk, the high value of which enables it to bear high transport charges. Great quantities of Californian fruit and of hops and apples from Oregon, Washington, and British Columbia are carried far eastward by rail, and even for export to Europe; and very large timber of the kind of which British Columbia almost has the monopoly is carried by rail from Vancouver even to Halifax for shipbuilding. But the great bulk of the commodities conveyed over these lines are the products of the north-west east of the Rockies—living animals (mainly for the slaughter-houses of Chicago), grain to the lake-ports of Chicago, Duluth, Superior, and Fort William or for further transport eastwards by rail, and other agricultural products, besides ores and metals from mines in the mountains. Westwards are carried chiefly coal and manufactured goods. Considerable quantities of Hawaiian sugar are imported at San Francisco to be again despatched by sea at Galveston for eastern ports, but this is exceptional. It is for this kind of traffic, however, that the Tehuantepec railway (305), the Panama railway, and the projected Panama canal (307*a*) are designed, and arrangements have already been made for the transport of Hawaiian sugar by the Tehuantepec route beginning in January 1907. An important advantage of all these last connections between the Atlantic and Pacific is the fact that the great circle route (359) from their Pacific termini to Japan and northern and middle China nearly follows the trend of the coast of North America as far as California, and even San Francisco is not very far out of such a direct course.

APPENDIX.

COLONIAL AND OTHER POSSESSIONS OF EUROPEAN POWERS.

Denmark.—Greenland, and certain West Indian Islands (314), besides Iceland and the Faroe Isles (151).

France.—In *Asia:* Pondichéry, &c., in India (197); a large part of Indo-China (210); and the territory of Kwang Chi Wan leased from China. In *Africa:* Algeria and Tunis (248); the Senegal region (266); Senegambia and Niger territories, French Guinea, Ivory Coast, Dahomey, and the French Congo territory in West Africa (266*b*); the Sahara, including the Libyan Desert and Wadai; Obock and other places on the Gulf of Aden (268); various islands off the east coast of Africa, including the protectorate of Madagascar (270, A). In *America:* Miquélon (290), French Guiana (320), Guadeloupe and Martinique. In the *Pacific:* New Caledonia and the Loyalty Isles (355); the Marquésas group (with Tahiti) and other Polynesian islands (356*c*).

Germany.—In *Asia:* Kiauchou Bay, held on lease from China. In *Africa:* German South-West Africa (263); Togoland and the Kamerun territory (266, 266*b*); German East Africa (266*f*). In the *Pacific:* part of New Guinea (Kaiser Wilhelm Land), together with the Bismarck Archipelago (354); the Marshall, Caroline, and Pelew Islands, the Ladrone Islands except Guam (356*c*); part of the Solomon group, and the two largest of the Samoan Islands.

Italy.—The colony of Eritrea (268) on the Red Sea, Italian Somaliland extending from Cape Guardafui to the mouth of the Jub, and Tripoli and Barka in N. Africa.

Netherlands.—Extensive possessions in the Eastern Archi-

pelago (215); Dutch Guiana (320); and a few of the smaller West Indian Islands (314); part of New Guinea (354).

Portugal.—In *Asia:* Goa and other places in India (197); part of Timor (215); Macao (226*b*). In *Africa:* the Bissagos Islands, with parts of the adjoining coast of west Africa between about 11° and 13° N.; Angola (266*d*); Portuguese East Africa (266*e*); the Azores, Madeira, Cape Verde, and other islands in the Atlantic (270, B).

Russia.—Siberia (180); Russian Central Asia, with Bokhara and Khiva, and the Trans-Caspian territory (184); the lieutenancy of the Caucasus (188).

Spain.—In *Africa:* The northern part of Morocco; the territory of Rio de Oro and Adrar on the coast south of Morocco, from the mouth of the Wady Draa to Cape Blanco; Rio Muni, a small strip of coast to the north of the French Congo territory (Bight of Biafra). Spain also possesses the Canary Islands, with those of Fernando Po, Annobon, and others off the coast of Guinea (270, B).

Turkey.—Turkey in Asia (189). See also 192 and 243.

United Kingdom.—In *Europe:* Gibraltar (160); Malta and Gozo (170). In *Asia:* Aden in Arabia (194), British India (197; see also 196*a*, 210, and p. 236); Ceylon (209); Straits Settlements with the Federated Malay States (214); North Borneo and Labuan (220); Hong-kong, with a portion of the opposite mainland leased from China, and the territory of Wei-hai-wei, also leased (226*b*). In *Africa:* in south Africa, Cape Colony, Natal, Bechuanaland, &c. (251, 257, 258, 260); in west Africa, Nigeria, Sierra Leone, Gold Coast, Lagos, &c. (266, 266*a*); in east Africa, British Central Africa Protectorate (Nyasaland), British East Africa, Uganda (266*e*, 266*f*), the sultanate of Zanzibar (267), British Somaliland on the Gulf of Aden (268); islands in the Indian and Atlantic Oceans (270, A, 270, B; see also 243). In *North America:* Canada (274), Newfoundland, the Bermudas (290), British Honduras (308), islands in the West Indies (313). In *South America:* British Guiana (320); Falkland Islands (330). In *Australasia:* the Australian Commonwealth, including Tasmania; New Zealand (342). In the *Pacific:* part of New Guinea (354), the Fiji Islands (356*a*), various small islands (356*c*). See also paragraph 192 and pp. 235–6.

PRINCIPAL UNITS OF THE METRIC SYSTEM OF WEIGHTS AND MEASURES.

1 metre	= 39·37 inches = 3·28 feet.
(1 kilomètre	= ·6214 mile.)
1 are	= 1076·4 square feet = ·0247 acre.
(1 hectare	= 100 ares, therefore = 2·47 acres.
1 sq. kilomètre	= 100 hectares = ·386 sq. mile.)
1 stère (or cubic metre)	= 61,028 cubic inches = 35·317 cubic feet.
1 gramme	= ·035 oz. = ·0022 lb. avoir.
(1 hectogramme	= 3·5274 oz.
1 kilogramme	= 2·205 lbs.
1 metric quintal	= 100 kilos = 220·5 lbs.
1 metric ton	= 1000 kilos = 2204·6 lbs. = ·984 English ton.)
1 litre	= 1·76 pint.
(1 hectolitre	= 22·0097 gallons, or 2·7512 bushels. Hectolitres per hectare × 1·113 = bushels per acre.)

RAILWAYS.

LENGTH PER 1000 SQUARE MILES AND PER 10,000 INHABITANTS.

Old Countries.	Miles.		New Countries.[2]	Miles.	
	Per 1000 sq. miles.	Per 10,000 of Pop.		Per 1000 sq. miles.	Per 10,000 of Pop.
Austria-Hungary ('01) .	95	5·0	Argentine Rep. ('02) .	9·7	23
Belgium ('02) . .	250	4·2	Brazil ('02) . . .	2·9	6·6
Denmark ('03) . .	127	7·8	Canada [3] ('02) . .	6·3	36
France ('02) . . .	117	6·2	Cape Colony ('02) . .	9·6	11
German Empire ('01) .	157	5·8	Chile ('02) . . .	10	9
India ('02) . . .	147	0·9	Mexico ('01) . . .	15	8·4
Italy ('03) . . .	90	3·1	New South Wales ('02) .	10	22
Japan ('01) . . .	27	0·9	New Zealand ('02) .	23	30
Russia ('03) . . .	15·5	3·0	Queensland ('02) . .	4·5	59
Spain ('01) . . .	43	4·5	South Australia ('02) .	2·1	51
Switzerland ('02) . .	170	8·3	United States [4] ('01) .	67	26
United Kingdom[1] ('02)	184	5·3	Victoria ('02) . .	37	27

[1] In England and Wales, 260 per 1000 sq. m., 4·7 per 10,000 of population
In Scotland, 119 ,, ,, 8 ,, ,,
In Ireland, 97 ,, ,, 7 ,, ,,

[2] See paragraphs 9 and 11*d*. [3] Including electric railways.

[4] See paragraph 301.

DISTANCES IN NAUTICAL MILES.

(60=1 degree.)

London to St. Petersburg, 1420; Fiume, 2975; Alexandria, 3100; Odessa, 3520; New York, 3300; Montreal, 3135.

Liverpool to Montreal, 2800; New York, 3030; Savannah, 3800; New Orleans, 4820; Pernambuco, 4060; Rio Janeiro, 5190; Buenos Aires, 6360.

COMPARISON OF OCEAN ROUTES BY THE CAPE OF GOOD HOPE AND CAPE HORN WITH THE SUEZ CANAL, PANAMA, AND TEHUANTEPEC ROUTES.

To	From London or Liverpool				
	By Cape Horn.	By Cape of Good Hope.	By Suez Canal.	By Isthmus of Panama.	By Isthmus of Tehuantepec.
Bombay	...	10,850	6,300	...	...
Calcutta	...	11,770 [4]	7,990 [7]	...	...
Singapore	...	11,840 [5]	8,270 [7]	...	...
Hong-kong	...	13,160 [5]	9,690 [7]	14,080	13,400
Yokohama	...	14,570 [5]	11,250 [7]	12,520	11,840
Melbourne	14,215 [1]	12,300 [6]	11,150 [6]	12,950 [8]	12,920 [9]
Auckland	12,620 [1]	14,380 [6]	12,670 [6]	11,350	11,320 [10]
Acapulco	12,820 [2]	...	...	6,250	5,570
San Francisco	14,630 [2]	...	...	8,060	7,380
Callao	10,600 [3]	...	...	6,180	7,260
Valparaiso	9,340 [3]	...	...	7,440	9,520
Honolulu	15,860 [2]	...	...	9,570	8,890

The Isthmus of Suez is pierced by a ship-canal 100 miles in length, opened in 1869 The Isthmus of Panama has been crossed by a railway since 1855. The distances between ports on different sides of the projected Nicaragua Canal (307) would be approximately the same as by the Panama route.

[1] Keeping N. after leaving Cape Horn.

[2] By Pernambuco, Bahia, Rio de Janeiro, Montevideo, Valparaiso, and Callao. To Honolulu direct by Cape Horn, from London, 13,980 miles; from New York, 13,510 miles.

[3] By the route indicated in Note 2.

[4] By Mauritius and Point de Galle.

[5] By Sunda Straits.

[6] By King George's Sound.

[7] By Point de Galle.

[8] By Auckland.

[9] By Tahiti and Auckland.

[10] By Tahiti.

RETURN OF SHIPPING THROUGH THE SUEZ CANAL.

Year.	Number of Vessels.	Net Tonnage[1] (000 omitted).	Year.	Number of Vessels.	Net Tonnage (000 omitted).
1869	10	7	1901	3699	10,824
1873	1173	1368	1902	3708	11,248
1874	1264	1632	1903	3761	11,907
1875	1494	2010	1904	4237	13,402
1878	1593	2270	1905	4116	13,134
1879	1477	2263	1906	3975	13,446
1880	2026	3057	1907	4267	14,728
1881	2727	4137	1908	3795	13,633
1882	3198	5075	1909	4239	15,408
1883	3307	5776	1910	4533	16,582
1884	3284	5872	1911	4969	18,325

Australian Traffic through the Canal from 1878.

Year.	Net Tonnage (000 omitted).	Year.	Net Tonnage (000 omitted).	Year.	Net Tonnage (000 omitted).
1878	46	1891	799	1904	924
1879	72	1892	795	1905	995
1880	108	1893	798	1906	1155
1881	209	1894	798	1907	1318
1882	343	1895	840	1908	1234
1883	489	1899	922	1909	1544
1884	554	1900	864	1910	1704
1885	534	1901	972	1911	1904
1889	640	1902	981	1912	2037
1890	716	1903	926		

Net Tonnage of Indian Traffic through the Canal (000 omitted).

	1890.	1908.	1909.	1910.	1911.	1912.
Bombay and W. Coast	1988	2193	3114	3359	3723	4812
Calcutta and E. Coast	1882	3769	4214	4300	4639	4947

In 1888, 78·65 per cent., or nearly four-fifths, of the total tonnage that passed through the canal was under the British flag; in 1903, the British percentage was 62·1; in 1911, 63·9; in 1912, 63·4.

[1] A ton of shipping is 40 cubic feet of internal space, the space being calculated according to certain rules. In estimating the net or register tonnage, certain deductions are made, including, in steamers, a deduction for engine-space.

AREA, POPULATION, AND EXPORTS OF THE PRINCIPAL COUNTRIES AND COMMERCIAL ISLANDS OF THE WORLD.

The population according to the latest census, where there are census returns, the exports generally for the same or a later year.

Explanations.

I. Area in thousands of square miles.

II. Population in millions in the year stated.

III. Density of population (number of inhabitants per square mile).

IV. Value of total exports (in most cases special exports) in millions sterling, for the most part in the same year as that for which the population is given or a later year.

V. Value of exports per head in pounds and decimals of a pound.

The members of the British Empire are printed in thick type.

Countries and Islands.	Year.	I. Area.	II. Population.	III. Density.	Exports.	
					IV. Total Value, Mill. £.	V. Val. per Head, £.
1. Algeria	1911	222	5·6	25	23·3[3]	4·2
2. Argentine Republic	1905	1117	5·1	5	64·6	12·6
3. **Australian Commonwealth**	**1911**	**2975**	**4·5**	**1**	**79·5[3]**	**17·8**
4. Austria-Hungary	1910	261	51·4	197	100	2·0
5. Belgium	1910	11·4	7·4	653	136	18·5
6. Bolivia	1910	708	2·3[1]	3	6·0[3]	2·6
7. Brazil	1910	3291	23·1	7	63·1[3]	2·7
8. Bulgaria	1910-1	37	4·3	116	7·4[3]	1·7
9. **Canadian Dominion**	**1911**	**3604[2]**	**7·2**	**2**	**64·8[3]**	**9·0**
10. **Ceylon**	**1911**	**25**	**4·1**	**162**	**12·1[3]**	**3·0**
11. Chile	1910	292	3·4[1]	12	23·8	7·0
12. China Proper	1911	1532	433[1]	283	50·7	0·1
13. Colombia	1910	438	4·3[1]	10	3·5[3]	0·8
14. Congo, Belgian	1909	910	15[1]	17	2·2	0·2
15. Cuba	1910	44	2·2	50	26·7	12·0
16. **Cyprus**	**1911**	**3·6**	**0·3**	**76**	**0·7**	**2·6**
17. Denmark	1911	15	2·8	183	29·8	10·8
18. Dutch East Indies	1905	739	37·7	51	...	...
19. Ecuador	1910	116	1·5[1]	13	2·8[3]	1·9
20. Egypt (excluding Desert)	1907	12	11·3	939	28·7	2·5

[1] Estimates. [2] Land area. [3] General.

Countries and Islands.	Year.	I. Area.	II. Population.	III. Density.	Exports. IV. Total Value, Mill. £.	V. Val. per Head, £.
21. **Fiji Islands**	**1911**	**7·4**	**0·1**	**19**	**1·3**[3]	**9·4**
22. France	1911	207	39·6	191	243	6·1
23. Germany	1910	209	64·9	311	367·5	5·7
24. **Gold Coast**	**1911**	**80**	**1·5**	**19**	**3·8**	**2·5**
25. Greece	1907	24	2·6	108	4·7	1·8
26. **Guiana, British**	**1911**	**91**	**0·3**	**3**	**2·1**[3]	**7·0**
27. Hawaii	1910	6·4	0·2	30	9·7[3]	50·5
28. **Honduras, British**	**1911**	**8·6**	**0·04**	**4**	**0·6**[3]	**13·6**
29. India and Burma	1911	1773	315	178	...	...
30. **India and Burma, British**	**1911**	**1098**	**244**	**222**	**159**	**0·7**
31. Indo-China, French	1906	310	16·3	53	5·9	0·4
32. Italy	1911	111	34·7	314	86·8	2·5
33. **Jamaica**	**1911**	**4·2**	**0·8**	**198**	**2·9**[3]	**3·5**
34. Japan	1908	148	49·6[1]	336	39·3	0·8
35. **Mauritius**	**1911**	**0·7**	**0·4**	**512**	**2·7**[3]	**7·5**
36. Mexico	1910	767	15·1	18	26·5[3]	1·8
37. Netherlands	1909	12·6[2]	5·9	466	...	...
38. Neth. E. Indies. See No. 18						
39. **Nigeria, Southern**	**1911**	**80**	**7·9**	**98**	**5·4**[3]	**0·7**
40. **Newfoundland**	**1911**	**43**	**0·2**	**6**	**2·5**[3]	**10·3**
41. **New Zealand**	**1911**	**105**	**1·0**	**10**	**19·0**[3]	**18·9**
42. Norway	1910	120[2]	2·4	20	14·9	6·2
43. Paraguay	1911	172	0·8[1]	5	0·9	1·1
44. Persia	1910	628	9·5[1]	15	6·8[3]	0·7
45. Peru	1908	696	4·5[1]	6	5·5	1·2
46. Philippine Islands	1910	115	8·3	72	8·3	1·0
47. Portugal	1911	34	5·5	162	7·7	1·4
48. Roumania	1912	51	7·2	143	24·7[3]	3·4
49. Russia, European, and Finland	1911	2123	141[1]	67	130	0·9
50. Servia	1905-6	18·6	2·7	144	2·9	1·1
51. **Sierra Leone**	**1911**	**25**	**1·4**	**56**	**1·3**[3]	**0·9**
52. **South Africa, Union of**	**1911**	**473**	**6·0**	**13**	**57·3**[3]	**9·6**
53. Spain	1911	195	19·6	101	39·1	2·0
54. **Straits Settlements**	**1911**	**1·6**	**0·7**	**438**	**39·9**[3]	**55·9**
55. Sweden	1910	159[2]	5·5	35	32·9	6·0
56. Switzerland	1910	16[2]	3·8	235	49·0	13·0
57. Tunis	1911	47	1·9	40	5·7[3]	3·0
58. Turkey	1910	759	24[1]	31	16·4[3]	0·7
59. **United Kingdom**	**1911**	**121**	**45·2**	**373**	**454**	**10·0**
60. United States (excluding Alaska)	1910	2974[2]	92	31	356	3·9
61. Uruguay	1908	72	1·0	14	8·4	8·0
62. Venezuela	1910	394	2 ?	5 ?	3·4	1·7 ?
63. **West Indies, British**	**1911**	**12**	**1·7**	**140**	**10·0**[3]	**5·9**
64. West Indies, French	1911	1·1	0·4	371	1·7[3]	4·3

[1] Estimates. [2] Land area. [3] General.

TABLE OF SHIPPING.

AGGREGATE TONNAGE OF VESSELS ABOVE 100 TONS BURDEN BELONGING TO ALL COUNTRIES WITH A TOTAL OF MORE THAN 200,000 TONS.

Net Tonnage of Sailing-Vessels, Gross Tonnage of Steamers.[1]
(*Based on "Lloyd's Universal Register,"* 1902 and 1913.)
Millions of Tons and Decimals.

Countries.	Wood and Composite.	Iron and Steel.	Steamers.	Sailing-Vessels.	Total. Tonnage.	Total. Per cent.
British: United Kingdom	0·13	14·76	13·41	1·48	14·89	44·26
British: Colonies	0·36	0·75	0·78	0·33	1·12	3·33
British: **Total**	**0·49**	**15·51**	**14·19**	**1·81**	**16·01**	**47·59**
United States	1·35	2·26	2·22	1·39	3·61	10·73
Germany	0·05	3·23	2·79	0·49	3·28	9·75
Norway	0·56	1·10	0·94	0·72	1·66	4·93
France	0·07	1·55	1·15	0·47	1·62	4·82
Italy	0·29	0·89	0·70	0·48	1·18	3·51
Russia	0·19	0·62	0·58	0·23	0·81	2·41
Spain	0·04	0·72	0·72	0·04	0·76	2·26
Japan	0·21	0·52	0·59	0·14	0·73	2·17
Sweden	0·22	0·50	0·50	0·22	0·72	2·14
Holland	0·01	0·64	0·61	0·05	0·66	1·96
Austria-Hungary	0·01	0·59	0·56	0·02	0·58	1·72
Denmark	0·06	0·52	0·48	0·10	0·58	1·72
Greece	0·05	0·32	0·33	0·05	0·38	1·13
Turkey	0·06	0·09	0·09	0·06	0·15	0·45
1902—Total	**3·84**	**29·80**	**27·18**	**6·46**	**33·64**	**97·29**[2]
1913—Total	**2·35**	**42·24**	**40·52**	**4·08**	**44·60**	...
" British (U. K. only)	**0·07**	**18·14**	**17·73**	**0·48**	**18·21**	**40·8**

PERCENTAGE OF FOREST AREA TO TOTAL AREA IN VARIOUS COUNTRIES.

Algeria	5·9	Holland	6	Roumania	20
Austria-Hungary	29	India[4]	7·8	Russia	34
Belgium	12	Italy	18	Servia	13
Canadian Dominion[3]	41	Japan	18	Spain	16
Denmark	4·6	New South Wales[3]	25	Sweden	24
Finland	55	New Zealand	30	Switzerland	19
France	19	Norway	25	Turkey	14
Germany	26	Portugal	5·0	United Kingdom	3·8
Greece	12	Queensland[3]	50	United States[3]	35

[1] See p. 251, Note 1.
[2] Percentage of total belonging to countries above enumerated.
[3] Rough estimates
[4] Demarcated forest area only, 1901–2.

MONEYS OF ACCOUNT OF PRINCIPAL COUNTRIES.

In all civilised countries gold or silver coins determine the value of the rest of the coinage. Those in which gold coins determine the value are said to have a gold standard, the others a silver standard. Since 1873 there has been a great fall in the value of silver in relation to gold, so that an ounce of silver, which in 1873 cost in London nearly 5*s.*, could be bought in 1904 for about 2*s.* 3*d.* In consequence of that, the money of silver-standard countries has fallen in value compared with that of gold-standard countries.

A.—Gold-Standard Countries.

In the United Kingdom, the Australasian Colonies, Cape Colony, the British West Indies, and British Guiana the money of account is the *sovereign* or *pound;* in France, Belgium, and Switzerland, the *franc* (= 100 *centimes*), worth 9½*d.*; in Germany, the *mark* (= 100 *pfennig*), worth 11¾*d.*; in Denmark, Sweden, and Norway, the *crown* (= 100 *ore*), worth 1*s.* 1¼*d.*; in Holland, the *gulden* or *florin* (= 100 *cents*), worth 1*s.* 7½*d.*; in Portugal, the *milreis* (= 1000 *reis*), worth 4*s.* 5¼*d.*; in Japan (since October 1, 1897), the *yen* (= 100 *sen*), worth 2*s.* 0⅓*d.*; in Brazil,[1] the *milreis* (= 1000 *reis*), worth 2*s.* 3*d.*; in Egypt, the *piastre* (= 40 *paras*), worth 2⅙*d.*; in the United States and Canada, the *dollar* (= 100 *cents*), worth 4*s.* 1½*d.* The French franc = the *lira* of Italy (= 100 *centesimi*), the *peseta* of Spain (= 100 *centimos*), the *drachma* of Greece (= 100 *lepta*), the *dinar* of Servia (= 100 *paras*), the *ley* of Roumania (= 100 *banis*), and the *lew* of Bulgaria (= 100 *cents*).[2]

B.—Silver-Standard Countries.

In Austria-Hungary the currency was reformed on a gold basis by law of August 2, 1892, but the standard coin is the silver

[1] In Austria, Brazil, and Russia the usual currency is paper-money, the value of which differs from that of the metallic money of account. As to Russia, see note 1 on opposite page.

[2] In most of the Spanish republics of Central and South America the coinage is also based on the franc, the money of account being equivalent to a five-franc piece, but the silver coinage usually circulates at a lower rate than the corresponding coins in gold-standard countries. This money of account is known in the Argentine Republic, Uruguay, Chile, Ecuador, Guatemala, and Costa Rica as a *peso*, in Bolivia as a *boliviano*, in Peru as a *sol*, in Venezuela as a *venezolano*. In all of them it is divided into 100 *centavos*.

krone (= 100 *helder*), worth 10*d.*; the *florin* is still legal tender. In Russia,[1] the *rouble* (= 100 *copecks*) was worth in 1903, 2*s.* $1\frac{1}{2}$*d.*; in India,[2] Burma, Ceylon, and Mauritius the *rupee* (= 192 *pies*) has had, since 1893, a standard value of 1*s.* 4*d.*; in China, the *haikwan* (customs) *tael* ($1\frac{1}{3}$ oz. avd. = 1600–1700 *cash*, or 100 *candareens*, or 10 *mace*), worth, in 1903, about 2*s.* 5*d.*, is used in large transactions; in Hong-kong and the Straits Settlements, the Mexican and the British *dollar* (= 100 *cents*), worth about 1*s.* $8\frac{1}{2}$*d.*, are the standard coins;[3] in Mexico, the *dollar* was worth in 1903 about 1*s.* 8*d.*

Rate of Exchange.

There are certain usages in the mode of stating the rate of exchange in commercial reports. The following may serve as examples of the more important of these:—

Hamburg	20 63 = 20 marks 63 pfennigs per £1.
Paris	25 23 = 25 francs 23 centimes ,,
Genoa	25 96 = 25 lire 96 centesimi ,,
Athens	29 10 = 29 drachmas 10 lepta ,,
Amsterdam	12 3 = 12 florins 3 cents ,,
Vienna	12 9 = 12 ,, 9 kreuzer ,,
Copenhagen, Christiania, or Stockholm	18 40 = 18 crowns 40 ore ,,
New York or Montreal	4 87 = 4 dollars 87 cents ,,
St. Petersburg[4]	$25\frac{9}{16}$ = so many pence per rouble.
Madrid	$44\frac{1}{4}$ = ,, ,, 5 pesetas.
Lisbon	$52\frac{5}{16}$ = ,, ,, milreis.
Rio Janeiro	$21\frac{1}{2}$ = ,, ,, ,,
Bombay	16 = ,, ,, rupee.
Shanghai	29 or 2/5 = ,, ,, tael.
Hong-kong or Singapore	$20\frac{1}{2}$ = ,, ,, dollar.
Mexico	20 = ,, ,, ,,
Buenos Aires or Montevideo	$45\frac{1}{2}$ = ,, ,, peso.

[1] In Russia the ratio between gold and paper currency since 1895 has been 10 *roubles* gold = 15 *paper roubles*. By an Imperial decree (January 1897) the imperial, a gold coin value 10 roubles, was raised to the nominal value of 15 roubles.

[2] In India and Burma notes are in circulation within certain districts (circles of issue) exchangeable for specie at full value.

[3] An order of the King in Council, June 25, 1903, authorised the coinage of a Straits Settlements dollar of the same value as the British dollar.

[4] Sometimes the exchange between Russia and England is expressed in roubles and copecks per £1 (for example, 10·44, 9·77).

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